TM 11-6625-1634-15

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

RADIO TEST SET AN/URM-101B

TS-1349

HEADQUARTERS, DEPARTMENT OF THE ARMY
JANUARY 1970

HEADQUARTERS
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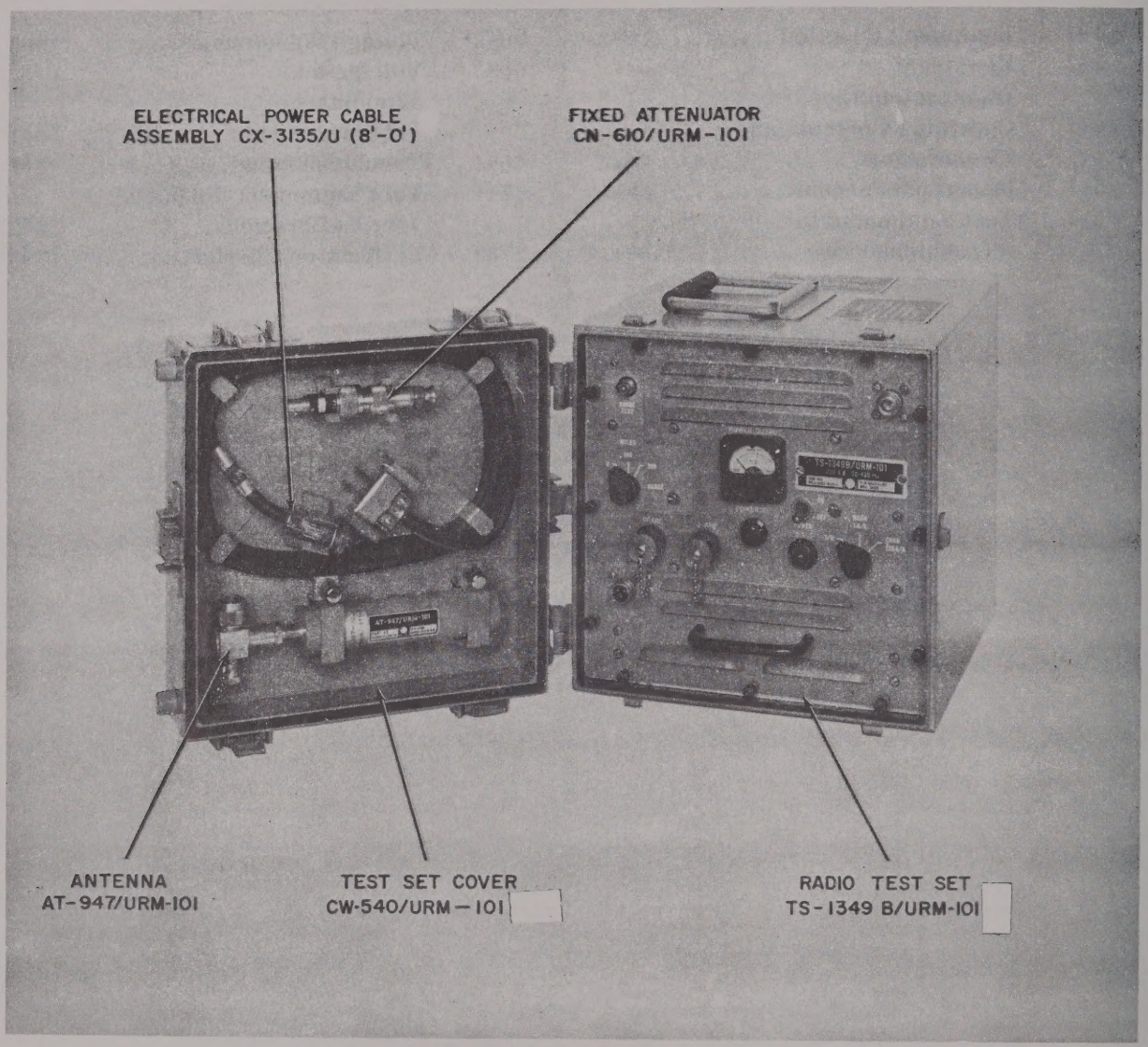

Figure 1-1. Radio Test Set AN/URM-101B.

SECTION A

PRELIMINARY

A-1. Indexes of Publications.

a. DA Pam 310-4. Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are Modification Work Orders (MWO's) pertaining to the equipment.

A-2. Forms and Records.

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions given in TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSUP Publication 378 (Navy), AFR 71-4 (Air Force), and MCO P4610-5 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP)(SF361). Fill out and forward Discrepancy in Shipment Report (DISREP)(SF361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P4610.19 (Marine Corps).

d. Report of Equipment Manual Improvements. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-EM, Fort Monmouth, New Jersey 07703.

SECTION I

INTRODUCTION AND DESCRIPTION

1-1. GENERAL.

1-2. a. This manual covers the description, general principles of operation, the operation, and maintenance of Radio Test Set AN/URM-101B (see figure 1-1). A Repair Parts and Special Tools List is also included (Appendix D) to aid in identifying and replacing parts. Throughout this manual the common usage name "test set" refers to Radio Test Set AN/URM-101B. Radio Test Set AN/URM-101B combines Radio Test Set AN/URM-101, Radio Test Set AN/URM-101A, and modification of Radio Test Set TS-1349/URM-101 to TS-1349B/URM-101.

b. Appendixes B, C, and D are current as of 30 Nov 69.

1-3. PURPOSE OF EQUIPMENT

1-4. The test set is a lightweight, easy-to-use unit developed to provide preflight check of the normal operation of airborne TACAN Radio Set AN/ARN-21 or similar radio sets. The test set may be hand-carried to the vicinity of the aircraft equipped with the radio set and placed on the ground, or any other suitable support. During operation of the test set, visual and aural indications at the radio set will enable an observer to determine whether the radio set is operating properly. The test set simulates a TACAN ground beacon or air-to-air (A/A) interrogation and both receives from and transmits to the AN/ARN-21 radio set, either by radiation from the antenna or by direct connection with coaxial cable. The test set will operate with up to four AN/ARN-21 radio sets simultaneously.

1-5. DESCRIPTION OF EQUIPMENT.

1-6. PHYSICAL CHARACTERISTICS. The test set is a portable, self-contained unit enclosed in a metal case. (See figure 1-1.) Table 1-1 lists the equipment supplied as part of the test set. The cover portion houses the antenna, fixed attenuator, and electrical power cable assembly. The test set is held within the case by 12 captive knurled screws, located on the front panel. A handle on the test set is provided for carrying the equipment, and six latches to secure the cover of the case. An additional handle is provided on the front panel for easy removal of the test set chassis.

1-7. All operating controls, receptacles, protective and spare fuses are located on the front panel and are clearly identified as to function and value on the gray finish background. Also located on the front panel are the power output monitoring meter and indicator lamp.

1-8. The main assembly of the test set is divided into the following major subassemblies: the receiver-transmitter chassis, which contains a portion of the video section, the entire transmitting section, and the power supply; printed circuit board assembly A101, which comprises the multivibrator and countdown section; printed

circuit board assembly A101, which comprises the reference groups, video, and range section; mixer assembly A301, which includes the front panel antenna receptacle; printed circuit board assembly A601, which comprises range delay monostable, A/A interrogation generator, A/A reply test monostable, pulse amplifier, neon driver, and A/A meter drive; A/A r-f generator A701, which comprises an oscillator, doublers, amplifier, and video detector; printed circuit board assembly A801, which includes pulse amplifier of the pulse shaper; and capacitor assembly A901.

1-9. The dimensions of the test set including its cover are 11-1/4 inches high by 11-1/8 inches wide by 14-3/8 inches deep. The overall weight of the test set and cover, including accessories supplied (table 1-1) is approximately 25 pounds.

1-10. ELECTRICAL CHARACTERISTICS. The electrical characteristics of the equipment are given in table 1-2.

1-11. GENERAL CHARACTERISTICS.

1-12. The test set comprises electron tube stages with their associated circuits, which simulate signals such as those produced by Radio Beacon Set AN/URN-3, and which would normally be received by Radio Set AN/ARN-21 at a particular bearing and distance from the beacon set. The test set generates a continuous tone signal, which provides aural indication when received. The test set transmits a continuous pulse train consisting of main and auxiliary reference pulse groups (bursts), identity pulses and equalizing pulses; all pulses are generated in pairs 12 usec (±1 usec) apart, each pulse is 6 usec (±1 usec) in duration. In addition, when interrogated, it introduces reply pulses delayed to simulate distances of 0, 190, and 290 miles. All of these pulses are amplitude-modulated with 15 and 135- cps sine waves and are synchronized to give a bearing display of 140 degrees on the airborne azimuth indicating equipment. A power output level control adjusts the r-f unit to a constant power output, which is indicated on a panel meter. A range switch sets the desired 0-mile, 190-mile, and 290-mile delay.

1-13. PRINCIPLES OF OPERATION.

1-14. The following paragraphs discuss the general principles of operation by stage functions, and these functions are grouped under sections for quick comprehension. When in the T/R mode, power to the A/A interrogation generator CR617 is removed; therefore, no interrogation pulses are produced. The order of these stages is outlined according to the block diagram in figure 1-2, and the principles of operation of these stages and their associated circuitry are sequenced with the overall schematic diagram in figure 1-3. Refer to these diagrams throughout the remainder of the discussions.

1-15. DME RECEIVER SECTION.

1-16. The DME (distance measurement equipment) receiver section comprises amplifier V302A, limiter V302B, and decoder V205B. When an interrogating signal from the radio set under test is induced in the antenna, the incoming signal is directed to the receiver by a resistive power divider in the mixer assembly A301 (paragraph 1-46). In the mixer assembly, the input signal is detected by crystal detector diode CR308. Choke L312 in the crystal holder serves as a high-pass filter and a d-c return for both the crystal detector and the crystal multiplier CR309 (paragraph 1-46). Capacitor C332 is an r-f bypass capacitor. The detected signals are fed via cable W301 to be amplified and shaped by DME amplifier V302A and limiter V302B.

NT SUPPLIED

Designation
49B/URM-101
947/URM-101
610/URM-101
3135/U (8'-0")
-540/URM-101

CHARACTERISTICS

o 420 cps, single phase, 75 watts.

taneous crystal-controlled frequencies, l channel 118 (1205 mcs). Fifth harmonic arate A/A frequency bands, channel 64 to and channel 1 to 63 (1088 to 1150 mcs).

ude-modulated to simulate radio bearing of olerances shown apply between -30 degrees -50 degrees C (+120 degrees F). At tem- s range, performance accuracy may be ee bearing.)

continuous identity tone.

nsmission from AN/ARN-21, and provides ances either 0 ±0.1 miles, 190 ±2 miles, T/R mode and 4 ±1/2 mile, 189 ±2 miles, A/A mode. (The tolerances shown apply -22 degrees F) and +50 degrees C (+120 atures outside of this range, performance red to 5 miles ±2 miles and 100 miles ±5

ulse.

channel 3 (1027 mcs) and channel 118

circuit board assembly A101, which comprises the reference groups, video, and range section; mixer assembly A301, which includes the front panel antenna receptacle; printed circuit board assembly A601, which comprises range delay monostable, A/A interrogation generator, A/A reply test monostable, pulse amplifier, neon driver, and A/A meter drive; A/A r-f generator A701, which comprises an oscillator, doublers, amplifier, and video detector; printed circuit board assembly A801, which includes pulse amplifier of the pulse shaper; and capacitor assembly A901.

1-9. The dimensions of the test set including its cover are 11-1/4 inches high by 11-1/8 inches wide by 14-3/8 inches deep. The overall weight of the test set and cover, including accessories supplied (table 1-1) is approximately 25 pounds.

1-10. ELECTRICAL CHARACTERISTICS. The electrical characteristics of the equipment are given in table 1-2.

1-11. GENERAL CHARACTERISTICS.

1-12. The test set comprises electron tube stages with their associated circuits, which simulate signals such as those produced by Radio Beacon Set AN/URN-3, and which would normally be received by Radio Set AN/ARN-21 at a particular bearing and distance from the beacon set. The test set generates a continuous tone signal, which provides aural indication when received. The test set transmits a continuous pulse train consisting of main and auxiliary reference pulse groups (bursts), identity pulses and equalizing pulses; all pulses are generated in pairs 12 usec (±1 usec) apart, each pulse is 6 usec (±1 usec) in duration. In addition, when interrogated, it introduces reply pulses delayed to simulate distances of 0, 190, and 290 miles. All of these pulses are amplitude-modulated with 15 and 135- cps sine waves and are synchronized to give a bearing display of 140 degrees on the airborne azimuth indicating equipment. A power output level control adjusts the r-f unit to a constant power output, which is indicated on a panel meter. A range switch sets the desired 0-mile, 190-mile, and 290-mile delay.

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1-15. DME RECEIVER SECTION.

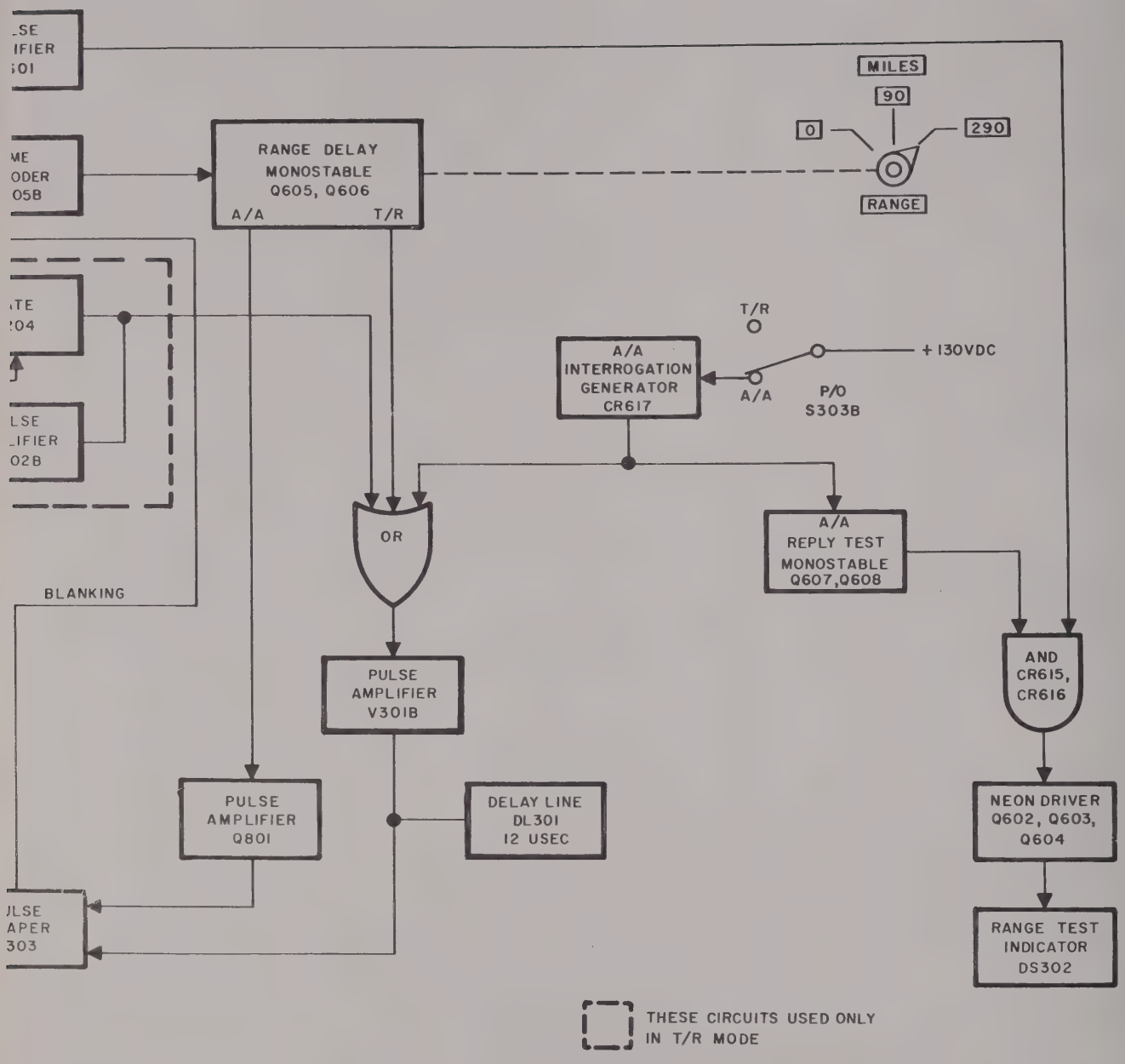
1-16. The DME (distance measurement equipment) receiver section comprises amplifier V302A, limiter V302B, and decoder V205B. When an interrogating signal from the radio set under test is induced in the antenna, the incoming signal is directed to the receiver by a resistive power divider in the mixer assembly A301 (paragraph 1-46). In the mixer assembly, the input signal is detected by crystal detector diode CR308. Choke L312 in the crystal holder serves as a high-pass filter and a d-c return for both the crystal detector and the crystal multiplier CR309 (paragraph 1-46). Capacitor C332 is an r-f bypass capacitor. The detected signals are fed via cable W301 to be amplified and shaped by DME amplifier V302A and limiter V302B.

TABLE 1-1. EQUIPMENT SUPPLIED

Quantity	Name	Type Designation
1	Test Set, Radio	TS-1349B/URM-101
1	Antenna	AT-947/URM-101
1	Attenuator, Fixed	CN-610/URM-101
1	Cable Assembly, Power, Electrical	CX-3135/U (8'-0")
1	Cover, Test Set	CW-540/URM-101

TABLE 1-2. ELECTRICAL CHARACTERISTICS

Power Requirements:	115 volts ac ±10%, 50 to 420 cps, single phase, 75 watts.
R-f Output frequencies:	In T/R mode two simultaneous crystal-controlled frequencies, channel 3 (964 mcs) and channel 118 (1205 mcs). Fifth harmonic frequencies for two separate A/A frequency bands, channel 64 to 126 (1025 to 1087 mcs) and channel 1 to 63 (1088 to 1150 mcs).
Modulation:	Pulse-coded and amplitude-modulated to simulate radio bearing of 140 ±2 degrees. (The tolerances shown apply between -30 degrees C (-22 degrees F) and +50 degrees C (+120 degrees F). At temperatures outside of this range, performance accuracy may be impaired to 140 ±4 degree bearing.)
Tone Signal:	Pulse-coded to provide continuous identity tone.
Range:	Detects and decodes transmission from AN/ARN-21, and provides replies to simulate distances either 0 ±0.1 miles, 190 ±2 miles, or 290 ±2 miles in the T/R mode and 4 ±1/2 mile, 189 ±2 miles, and 289 ±2 miles in the A/A mode. (The tolerances shown apply between -30 degrees C (-22 degrees F) and +50 degrees C (+120 degrees F). At temperatures outside of this range, performance accuracy may be impaired to 5 miles ±2 miles and 100 miles ±5 miles.)
R-f Power Output:	-30 dbm peak carrier pulse.
Receiver Sensitivity:	+3 dbm peak pulse.
Receiver Frequencies:	Broad band, including channel 3 (1027 mcs) and channel 118 (1142 mcs).



ALL SWITCHES SHOWN IN A/A POSITIONS

Figure 1-2. Radio Test Set AN/URM-101B, Functional Block Diagram

1-17. DME AMPLIFIER AND LIMITER. The DME amplifier stage V302A is used to amplify and shape the incoming signals, which are then fed to limiter V302B. DME limiter stage V302B is used to amplify and limit the interrogating signal. Since the unit utilizes a common antenna and mixer for transmitting and receiving, the crystal detector also detects the test set transmitter output, which is not desirable. Therefore, pulses are taken via resistor R319, from the pulse shaping multivibrator V303, to blank (cut off) the receiver for the duration of each transmitted pulse. Diode CR302 is a clamping diode for the blanking pulses. Diode CR301 removes "overshoot" from received pulses. The receiver sensitivity adjustment potentiometer R312, in the cathode circuit of V302B, adjusts the gain of this stage for received signals. These signals are then coupled to the DME decoder V205B.

1-18. DME DECODER. The DME decoder stage V205B is used to further amplify and limit the signals, and to reject pulses with improper coding. The plate circuit of this stage contains a tuned circuit composed of capacitor C218 and variable inductor L203, the decoder adjustment. This tuned circuit is resonant to pulses of 12-usec spacing, so that the second pulse of the interrogating pair will always be stronger than the first. Thus, since the stronger pulse is greater than B+ (the level of the diode clipper CR201), it is the only pulse that will appear at the output of the stage. This is the decoded pulse, and it is used to trigger the range delay V206. Improper pulse spacings of less than 7 usec or greater than 17 usec are rejected in this stage due to the selectivity of the tuned circuit and will not produce a trigger.

1-19. RANGE SECTION.

1-20. RANGE DELAY. The distance reply pulses to Radio Sets AN/ARN-21 or AN/ARN-52(v) are developed in this stage. Range delay monostable multivibrator Q605 and Q606, generates distance reply pulses by delaying the decoded interrogating signals, thereby, simulating signal transit times between the aircraft and a distant beacon or by air-to-air testing function. Range switch S302, located on the front panel, selects the amount of delay desired. When S302 is in the "0 MILES" position, the 0-mile r-c time delay circuit is then connected to the range delay monostable circuit; adjustment of the 0-mile delay is made by R367, the "0 MILES" delay adjustment potentiometer. When S302 is in the "190 MILES" position, the 190-mile r-c delay circuit is connected to the range delay monostable circuit. Adjustment of the 190-mile delay is made by R368, the "190 MILE" delay adjustment potentiometer. When S302 is in the "290 MILES" position, the 290-mile r-c delay circuit is connected to the range delay monostable circuit. Adjustment of the 290-mile delay is made by R369, the 290-mile delay adjustment potentiometer. The distance reply pulse is fed through an OR gate to the delay line DL301 and pulse amplifier V301B. Reply pulse in air-to-air mode is amplified by pulse amplifier Q801 then applied directly into the pulse shaper V303.

1-21. DELAY AND TONE PULSE AMPLIFIER. Identity and equalizing pulses from multivibrator V101 are coupled to this stage, V205A, where they are amplified and fed to the cathode of the pulse train amplifier V202A.

1-22. PULSE AMPLIFIER (T/R).

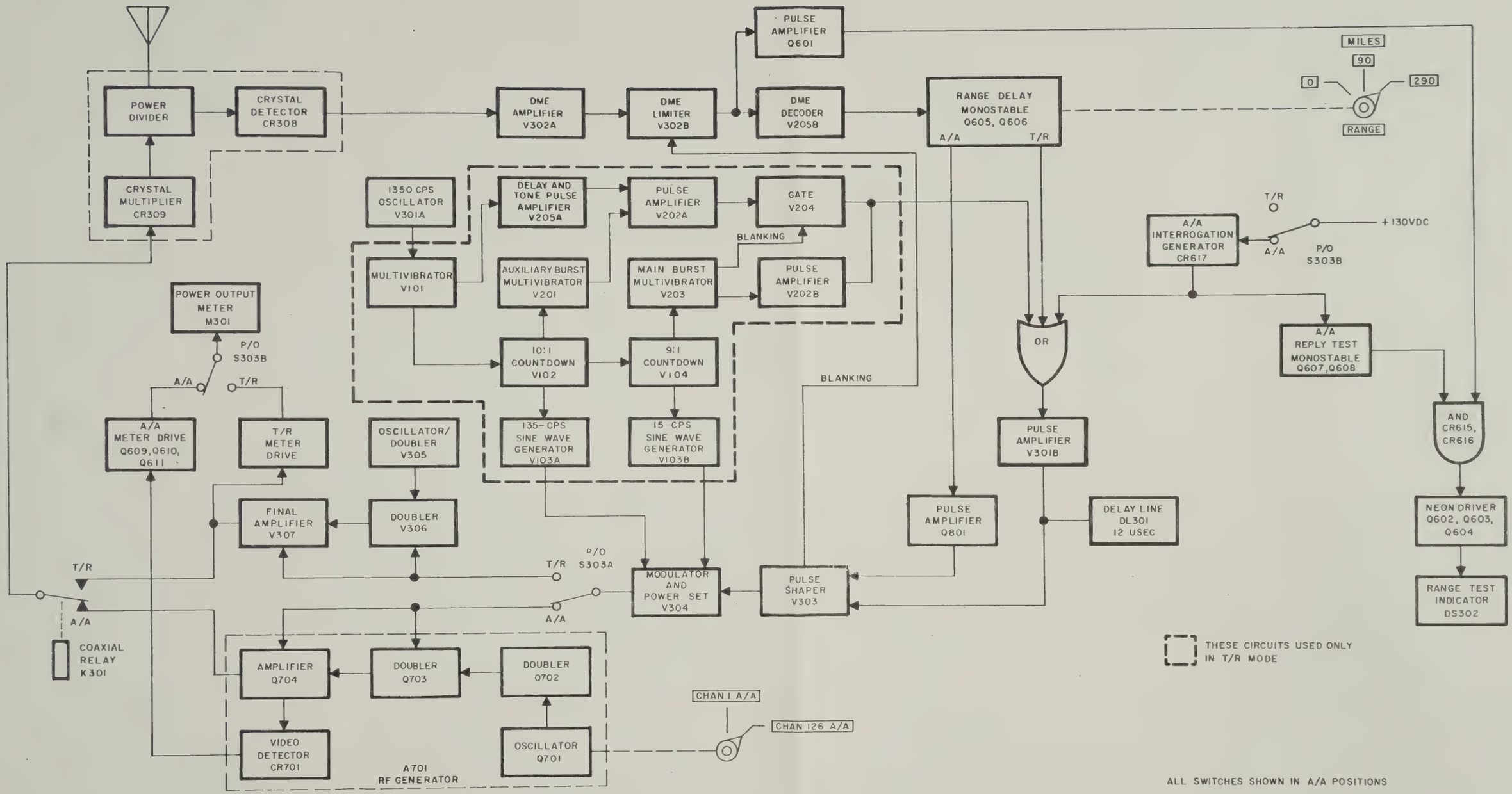
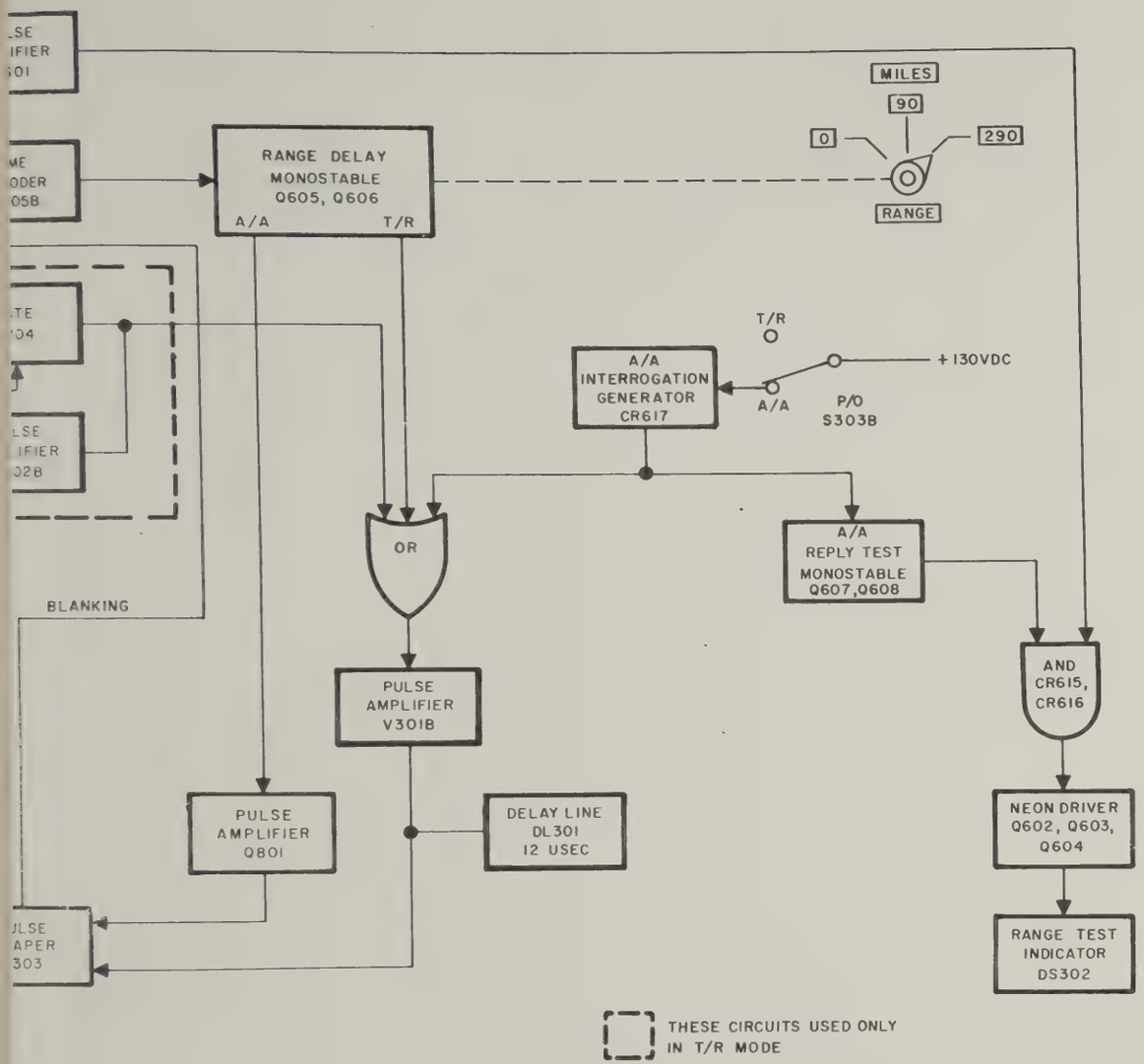


Figure 1-2. Radio Test Set AN/URM-101B, Functional Block Diagram



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1-19. RANGE SECTION.

1-20. RANGE DELAY. The distance reply pulses to Radio Sets AN/ARN-21 or AN/ARN-52(v) are developed in this stage. Range delay monostable multivibrator Q605 and Q606, generates distance reply pulses by delaying the decoded interrogating signals, thereby, simulating signal transit times between the aircraft and a distant beacon or by air-to-air testing function. Range switch S302, located on the front panel, selects the amount of delay desired. When S302 is in the "0 MILES" position, the 0-mile r-c time delay circuit is then connected to the range delay monostable circuit; adjustment of the 0-mile delay is made by R367, the "0 MILES" delay adjustment potentiometer. When S302 is in the "190 MILES" position, the 190-mile r-c delay circuit is connected to the range delay monostable circuit. Adjustment of the 190-mile delay is made by R368, the "190 MILE" delay adjustment potentiometer. When S302 is in the "290 MILES" position, the 290-mile r-c delay circuit is connected to the range delay monostable circuit. Adjustment of the 290-mile delay is made by R369, the 290-mile delay adjustment potentiometer. The distance reply pulse is fed through an OR gate to the delay line DL301 and pulse amplifier V301B. Reply pulse in air-to-air mode is amplified by pulse amplifier Q801 then applied directly into the pulse shaper V303.

1-21. DELAY AND TONE PULSE AMPLIFIER. Identity and equalizing pulses from multivibrator V101 are coupled to this stage, V205A, where they are amplified and fed to the cathode of the pulse train amplifier V202A.

1-22. PULSE AMPLIFIER (T/R).

1-23. The pulse train from the delay and tone pulse amplifier is coupled so the cathode of pulse amplifier, stage V202A. This signal is amplified at this stage together with auxiliary bursts, which are coupled to the grid from V201. The combined signal is then routed to the grid of the gate V204. The other half of the pulse amplifier, stage V202B, is used to amplify the main bursts from V203. After amplification, the main bursts are coupled to the plate of the gate V204 where they combine with the gated pulses.

1-24. OSCILLATOR AND COUNTDOWN SECTION (T/R).

1-25. The 1350-CPS OSCILLATOR. Stage V301A is used to develop a voltage waveform at a fixed frequency of 1350 cps. This Hartley-type oscillator is fixed-tuned by tank circuit Z301. The output of this oscillator produces a negative-going 35-volt trigger from which all internally produced pulses are derived and is coupled to multivibrator V101.

1-26. MULTIVIBRATOR. One-shot multivibrator stage V101A and B utilizes a type 5670 twin triode and is triggered by the 1350-cps oscillator. Pulses from V101A are mixed with pulses from V101B at the junction of capacitor C102 and resistor R108. Adjustment of the multivibrator duration is accomplished by potentiometer R106, which sets the spacing between identity and equalizing pulses. This circuit provides the identity and equalizing pulses. (Equalizing pulses may be transmitted 100 ±20 usec after each identity pulse pair, but a spacing of 87 usec is used to prevent the equalizing pulse from appearing in auxiliary bursts.) The output of this stage is combined with the distance reply signal at the grid of V205A, further amplified at V202A, then fed to the electronic gate V204. Another output is used to trigger the 10:1 countdown state V102.

1-27. THE 10:1 COUNTDOWN. Pulses from the plate of multivibrator V101 are coupled through diode CR101 to trigger phantastron V102. These triggering pulses at the plate of V102 cause the switching action of the tube to start. The recovery time of the countdown stage is set so that every tenth pulse triggers the tube. The 10:1 countdown ratio is regulated by the 10:1 countdown adjustment potentiometer R114. Three outputs of the tube are coupled to the following stages: The auxiliary burst multivibrator V201 is triggered by pulses from the screen grid, the 135-cps sine wave generator V103A is driven by pulses from the screen grid, and the 9:1 countdown is triggered by pulses from the cathode.

1-28. THE 9:1 COUNTDOWN. The action of the 9:1 countdown stage, V104, is identical with the 10:1 countdown tube V102, and is triggered by the 10:1 countdown tube V102, through coupling diode CR102. The nine-to-one countdown ratio is regulated by 9:1 countdown adjustment potentiometer R141.

1-29. THE 135-CPS SINE WAVE GENERATOR. This stage V103A, and stage V103B provide the 140-degree bearing modulation mentioned in paragraph 1-12. The phase of the 135-cps sine wave generator V103A, with respect to the auxiliary burst, determines, in part, the bearing indication of the AN/ARN-21. Nine degrees of the 135-cps sine wave correspond to one degree of the AN/ARN-21 bearing indicator. Therefore, varying the phase of the 135-cps generator 360 degrees results in a 40-degree change in the AN/ARN-21 indication. The phase relationship between the companion 15-cps sine wave generator V103B and the main burst determines which one of the 40 degree areas the AN/ARN-21 bearing indicator will locate at. The phase of the 135-cps generator determines the location within the determined 40-degree area. Pulses from

the 10:1 countdown V102 are used to drive V103A and a phase-shift network. Final adjustment of the sine wave output phase is obtained by 135-cps phase adjustment potentiometer R124.

1-30. THE 15-CPS SINE WAVE GENERATOR. As mentioned in the previous paragraph, this stage V103B, works in conjunction with the 135-cps sine wave generator. It is also similar in action and design, except this stage, with its phase-shift network, is driven by 9:1 countdown V104. The 15-cps sine wave output phase of V103B is regulated by the adjustment of 15-cps phase adjustment potentiometer R129.

1-31. The outputs of V103A and B are mixed at the junctions of resistors R325 and R326 on the receiver-transmitter chassis to form a composite signal of a 135-cps sine wave superimposed on a 15-cps sine wave, then coupled to the modulator V304 to modulate the pulse train.

1-32. REFERENCE GROUP SECTION (T/R).

1-33. AUXILIARY BURST MULTIVIBRATOR. This stage V201 is used to form the auxiliary reference pulse group, which is referred to throughout this handbook as "auxiliary burst." Pulses taken from the screen grid of the 10:1 countdown tube V102 are used to trigger V201A, which is a one-shot multivibrator. The duration of the multivibrator gate is adjusted by auxiliary pulse group length adjustment potentiometer R202. Multivibrator V201B is used to produce ringing in a tank circuit consisting of variable inductor L201 and capacitor C204. The pulse spacing is determined by the frequency at which L201 and C204 resonate, one pulse being produced for each sine-wave ringing cycle. The ringing caused by the resonance of L201 and C204 merely influence the position of the last pulse in the train. The negative transition of the plate voltage of V201B at the end of the monostable period determines the spacing between the last pulse and its predecessor. The number of pulses, or duration of the auxiliary burst, is controlled by auxiliary pulse group length adjustment potentiometer R202. The output of the ringing tuned circuit is coupled to pulse amplifier V202A where it is limited and shaped to produce pulses from the original sine waves.

1-34. MAIN BURST MULTIVIBRATOR. The main reference pulse group is developed in stage, V203, and is conveniently called "main burst." Pulses which are taken from the screen grid of the 9:1 countdown tube, V104, are used to trigger one-shot multivibrator V203B. The duration of the multivibrator gate is controlled by main pulse group length adjustment potentiometer R221. The operation of this stage is identical with the auxiliary burst multivibrator.

1-35. ELECTRONIC GATE (T/R).

1-36. Electronic gate, V204, removes the DME reply pulses, the identity tone signals and the auxiliary burst signals during the main burst. During operation, a negative gate is applied to V204 from the main burst multivibrator, which is of the same duration as the main burst. This negative gate blocks all signals which include the auxiliary bursts, for the duration of the main bursts.

1-37. VIDEO SECTION (T/R and A/A).

1-38. PULSE AMPLIFIER AND DELAY LINE. The pulse train from the plate of the gate is coupled to pulse amplifier V301B, where it is amplified. Delay line DL301 pairs the pulse train with developed reflected pulses spaced 12 usec after the start of each originating pulse. The paired pulse train is then coupled to pulse shaping

multivibrator stage V303. Pulses from A/A interrogation generator CR617 are amplified by pulse amplifier V301B and then doubled by delay line DL301.

1-39. PULSE SHAPING MULTIVIBRATOR. The pulse train from delay line DL301 is used to trigger one-shot multivibrator V303. Multivibrator V303 then provides a uniform amplitude and width pulse train, which is modulated by the composite sine width (a 135-cps sine wave superimposed on a 15-cps sine wave) that is fed from V103A and B. The amplified A/A interrogation pulses from delay line DL301 are restored by pulse shaper V303 and drive modulator and power set V304 which modulates the r-f carrier of r-f generator A701.

1-40. TRANSMITTER SECTION (T/R).

1-41. MODULATOR. The modulator stage employs twin triode V304 as a cathode follower (both sections in parallel). The output waveform of V304 is used to modulate the r-f transmitter through POWER SET potentiometer R342, which controls the output power level of the signals.

1-42. OSCILLATOR AND DOUBLER. This combination crystal oscillator and doubler stage, V305, employs a type 5654/6AK5W pentode. The crystal frequency of the oscillator is set by crystal Y301 to 60.250 mcs. This stage doubles the crystal frequency to 120.500 mcs.

1-43. DOUBLER. The output frequency of the previous stage, V305, is doubled again in this stage (V306) to a frequency of 241 mcs. This stage is screen modulated by the pulse train.

1-44. FINAL AMPLIFIER. The 241-mcs r-f signal is amplified in power amplifier stage V307, which is the final r-f stage of the transmitter. The stage is pulse modulated on both plate and screen, having no dc supply voltages. POWER OUTPUT meter M301 is used to monitor the r-f power output level to a required constant level. Diode CR303 rectifies the r-f for the meter. The position on the face of the meter corresponding to a 30-microampere level is marked on the face of the meter as "POWERSET." POWER SET control knob on the test set front panel is used to adjust the meter needle to read "POWER SET." The sensitivity of meter M301 is adjusted by meter sensitivity adjustment potentiometer R345.

1-45. TRANSMITTER SECTION (A/A).

1-46. OSCILLATOR. Interrogation triggers are generated by the PRF generator A701. This generator employs a four-layer diode circuit similar to that used in solid-state modulator for the AN/ARN-21. Different carrier frequencies for the two separate A/A channels are generated by a 54.40 mc crystal (CHAN 1 A/A) and by a 54.35 mc crystal (CHAN 126 A/A). The PRF is set by an internal adjustment at any desired point between 20 and 750 pps . In the air-to-air mode, the output of the PRF generator is switched into the pulse generator in place of the tone and reference pulses. The interrogation pulses will be coded in 12 microsecond pairs and the tone and reference pulses will be eliminated.

1-47. DOUBLER. The output frequencies of the oscillator stage Q701 is doubled in this stage Q702 to frequencies of 108.80 mc (CHAN 1 A/A) and 108.70 mc (CHAN 126 A/A).

1-48. DOUBLER. This stage Q703 again doubles the output frequency of doubler stage Q702 to frequencies of 217.60 mc (CHAN 1 A/A) and 217.40 mc (CHAN 126 A/A).

1-49. AMPLIFIER. The output frequencies of doubler stage Q703 are amplified in this

stage Q704 which is the final PRF stage Q704 of the transmitter. POWER OUTPUT meter M301 is used also to monitor a constant r-f power output level in the A/A interrogation mode. The output frequencies from the final amplifier are rectified by video detector CR701 and amplified by meter drive Q609, Q610, and Q611 before being switched to the POWER OUTPUT meter M301.

1-50. A/A INTERROGATION GENERATOR. This stage uses a shockley diode, CR617, which generates interrogation pulses at a rate of approximately 27 pps when +130 vdc is applied in the A/A mode. (The +130 and +150 volt power to these components are turned off during A/A operations.) These pulses are amplified by pulse amplifier V301B, doubled by delay line DL301, restored by pulse shaper V303, and modulates the r-f carrier of transmitter generator A701.

1-51. RANGE TEST INDICATOR.

1-52. A/A REPLY TEST MONOSTABLE. The interrogation pulses generated by interrogation generator, CR617, are also applied to the A/A reply test monostable multivibrator Q607 and Q608 which generates a 5 microsecond wide gate, delayed by 62 microseconds to correspond to "0 MILE" radio set reply time. This gate is applied to AND gate CR615 and CR616. The reply pulse from the radio set being tested is received, detected by crystal detector CR308, amplified and limited by DME amplifier and limiter, and coupled through pulse amplifier Q601 to the other input of AND gate CR615 and CR616. When the reply pulse is received within the proper time interval (60 - 65 microseconds), neon driver circuit Q602, Q603, and Q604 causes the front panel RANGE TEST indicator DS302 to illuminate.

1-53. MIXER ASSEMBLY.

1-54. Mixer assembly A301 is a coaxial "Tee" power divider network, which allows transmission and reception with the same antenna. The 241-mcs, pulsed, r-f signal from the final amplifier in the transmitter, is applied to a crystal multiplier CR309 in this assembly via L306 coupling loop. This crystal, mounted in a holder, generates the fourth and fifth harmonic frequencies 964 mcs and 1205 mcs (corresponding to channels 3 and 118 of the radio set) respectively, from the 241-mcs r-f signal. These two frequencies are adjusted to equal output level by harmonic balance adjustment potentiometer R344. Pulse receiving component detector CR308, described in paragraph 1-16, is also part of this assembly. Three resistors R346, R347, and R348, "T-connected" between the two crystal holders, serve as an impedance-matching device between the crystals and the antenna.

1-55. POWER SUPPLY.

1-56. The test set power supply utilizes a power step-up transformer T301, which receives 115-v ac applied to pins 1 and 2 of its primary whenever POWER ON switch S301 is in its "upward" position. Power is taken from pins 3 and 4 of the transformer secondary winding and rectified across a bridge rectifier circuit consisting of diodes CR304, CR305, CR306, and CR307, to provide three different B+ voltages: +130 vdc and +150 vdc. Filament voltage of 6.3 vac is provided across pins 5 and 6 of T301 secondary winding. POWER ON indicator lamp DS301, which is connected ahead of the filaments in the power supply, is energized whenever power is supplied to T301. The circuits of the power supply are protected from overloads by fuse F301, rated at 3 amp. The electrical power cable assembly is used

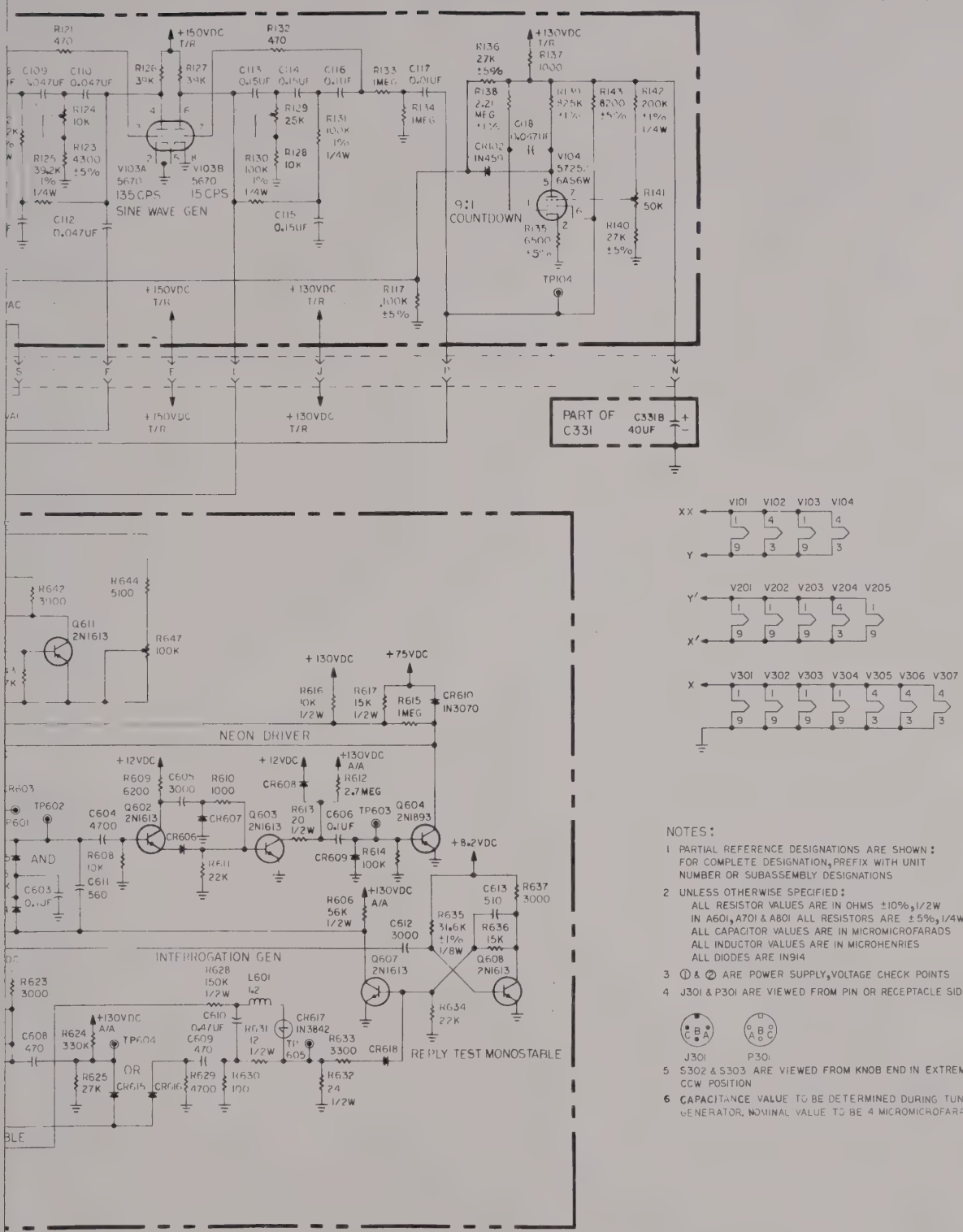
to connect the test set at input receptacle J301 to the external power source.

1-57. ANTENNA AT-947/URM-101.

1-58. The antenna assembly is used for reception and transmission. It is broadband covering all frequencies involved (964 to 1205 mcs). The antenna connects to ANTENNA jack J302.

1-59. FIXED ATTENUATOR CN-610/URM-101.

1-60. The fixed attenuator provides 30-db attenuation to the transmitted signals from the radio set, when the test set is directly connected to the radio set by coaxial cable. The 30-db attenuation reduces the transmitted power, and thereby avoids damage to the test set crystals. The attenuator connects to a BNC type receptacle on the antenna. This allows direct connection to one AN/ARN-21 equipment via the attenuator while testing other AN/ARN-21 units via radiated signals from the antenna.



NOTES:

1 PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATION, PREFIX WITH UNIT NUMBER OR SUBASSEMBLY DESIGNATIONS

2 UNLESS OTHERWISE SPECIFIED:
ALL RESISTOR VALUES ARE IN OHMS ±10%, 1/2W
IN A601, A701 & A801 ALL RESISTORS ARE ±5%, 1/4W
ALL CAPACITOR VALUES ARE IN MICROMICROFARADS
ALL INDUCTOR VALUES ARE IN MICROHENRIES
ALL DIODES ARE IN914

3 ① & ② ARE POWER SUPPLY, VOLTAGE CHECK POINTS

4 J301 & P301 ARE VIEWED FROM PIN OR RECEPTACLE SIDE

5 S302 & S303 ARE VIEWED FROM KNOB END IN EXTREME CCW POSITION

6 CAPACITANCE VALUE TO BE DETERMINED DURING TUNING OF A'A RF GENERATOR. NOMINAL VALUE TO BE 4 MICROMICROFARADS

Figure 1-3. Radio Test Set AN/URM-101B, Schematic Diagram

to connect the test set at input receptacle J301 to the external power source.

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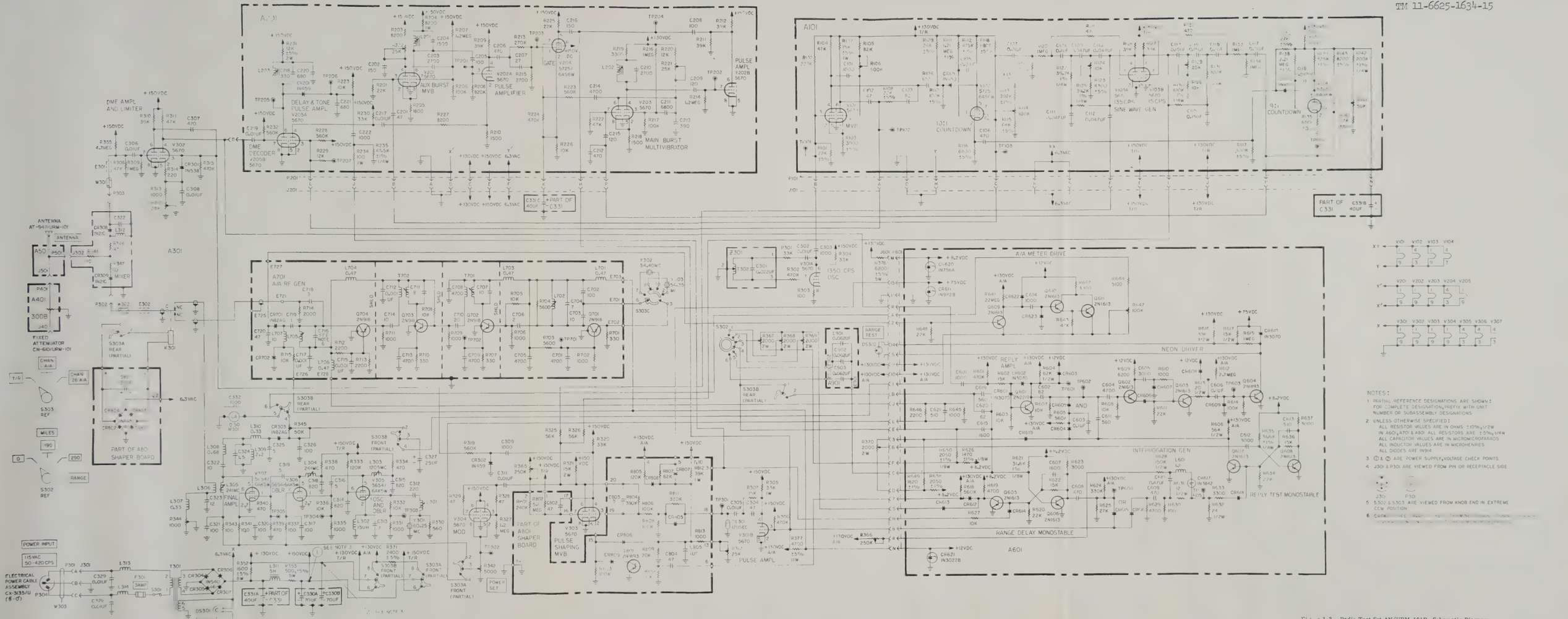

Figure 1-3. Radio Test Set AN/URM-101B, Schematic Diagram

SECTION II

SPECIAL SERVICE TOOLS

2-1. SPECIAL SERVICE TOOLS REQUIRED.

2-2. Special tools or fixtures are not required for operation and maintenance of the test set.

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SPECIAL SERVICE TOOLS

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SECTION III

PREPARATION FOR USE, STORAGE, OR SHIPMENT

3-1. UNPACKING AND INSPECTING THE EQUIPMENT,

3-2. The test set is packed in a standard container suitable for domestic shipment. Each test set should be carefully unpacked immediately upon receipt, and the unit thoroughly inspected for any physical damage that may have occurred during shipment. Unlatch and open the case cover to see if the equipment supplied as described in table 1-1 are accounted for. Next, loosen the front panel captive screws and remove the test set from the case, so that the unit may be further inspected.

3-3. PREPARATION FOR USE.

3-4. No adjustments are necessary before the equipment is placed in operation. The test set is a portable equipment, therefore, no special installation is required, and the power source will depend on the required location for a test. Power requirements are: 115 vac ±10%, 50 to 420 cps, single phase at 75 watts.

3-5. STORAGE.

3-6. The test set requires no special storage facilities.

3-7. PREPARATION FOR SHIPMENT.

3-8. To prepare the test set for shipment, proceed as outlined below:

a. Remove cable assembly CX-3135/U (8' -0") from power source outlet and from POWER INPUT receptacle on front panel of test set. Store cable assembly in cover of case as shown in figure 1-1.

b. Disconnect antenna AT-947/URM-101, and Attenuator CN-610/URM-101 (if it was in use) from ANTENNA receptacle on test set front panel. Store these accessories in case cover as illustrated in figure 1-1.

c. If test set was removed from the case, replace unit and be sure that 12 knurled screws on front panel are thoroughly secured. Close case cover and secure six latches. After it is packed in a standard container, equipment is now ready for shipment.

SECTION IV

OPERATION INSTRUCTIONS

4-1. GENERAL.

4-2. This section provides operation instructions for the test set. The test set may be operated with its antenna to receive a radiated interrogating signal from the radio set or sets under test, and also may be directly connected through a fixed attenuator to a single radio set. Up to four AN/URN-21 radio sets can be checked simultaneously. Observe all operating precautions listed in paragraph 4-7 before operation of the equipment; paragraph 4-9 gives the operating procedures.

4-3. FRONT PANEL OPERATING CONTROLS AND CONNECTORS.

4-4. The front panel controls and connectors used during the operation of the test set, are listed in table 4-1. The front panel of the test set is shown in figure 4-1.

4-5. FRONT PANEL FUSES.

4-6. The front panel also contains a power fuse labeled 3 AMP. and a spare fuse labeled SPARE. The 3 AMP. fuse protects the unit from overloads whenever power is applied to the test set. When this fuse blows, replace it with the SPARE fuse. A new fuse should be placed in the SPARE receptacle as soon as convenient after the original spare has been placed in service.

CAUTION

Do not replace a fuse with one of higher rating unless continued operation is more important than possible damage to the equipment. If a fuse blows immediately upon replacement, do not replace it a second time until the cause of the malfunction has been determined and remedied.

4-7. OPERATING PRECAUTIONS.

4-8. The following precautions must be observed when operating the test set.

CAUTION

Do not operate on external antenna when antenna separation is less than 20 feet from the AN/ARM-21 antenna.

Remove Antenna AT-947/URM-101 when the test set is in the vicinity of a powerful high-frequency transmitter even when the test set is not operating or is inoperative.

Never connect the test set directly into the AN/ARN-21 radio set without the use of Fixed Attenuator CN-610/URM-101.

TABLE 4-1. OPERATING CONTROLS AND CONNECTORS

Panel Designation	Function
POWER ON switch and POWER ON indicator lamp	POWER ON switch applies nominal 115-v a-c power to power transformer and POWER ON indicator lamp when it is in "upward" position. This switch removes power from these items when it is in "downward" position. POWER ON indicator lamp lights when POWER ON switch is in "upward" position. The lamp goes off when the switch is in reverse position.
POWER OUTPUT meter	This 0 to 50 microammeter monitors the r-f output level of test set. Position "POWER SET" marked on the face of the meter provides a -30 dbm r-f power output level indication.
POWER SET control knob	Adjusting this control knob until the POWER OUTPUT meter reads "POWER SET" provides a constant r-f power output level.
RANGE switch	This three-position rotary switch selects a delay corresponding to a distance of 0 miles for display when it is in 0 MILES position. With switch in 190 MILES position, a delay corresponding to a distance of 190 miles is selected for display. With switch in 290 MILES position, a delay corresponding to a distance of 290 miles is selected for display.
POWER INPUT	POWER INPUT receptacle connects test set to a 115-v a-c, 50 to 420-cps power source via cable assembly.
ANTENNA jack	This jack is utilized to connect antenna to the test set.
T/R, CHAN 1A/A, CHAN 126 A/A switch	The AN/URM-101B has two modes of operation; T/R (transmit-receive) which stimulates test signals to ground beacon, and A/A (air-to-air) which stimulates test signals to airborne interrogations and replies from airborne AN/URN-21 or AN/ARN -52(v) radio sets. Different carrier frequencies for two separate A/A channels are generated by CHAN 1 A/A and CHAN 126 A/A.
RANGE TEST indicator lamp	RANGE TEST indicator lamp lights when reply pulse is received within proper time interval. The lamp goes off when the received reply pulse does not fall in the proper time interval generated by A/A interrogation generator.

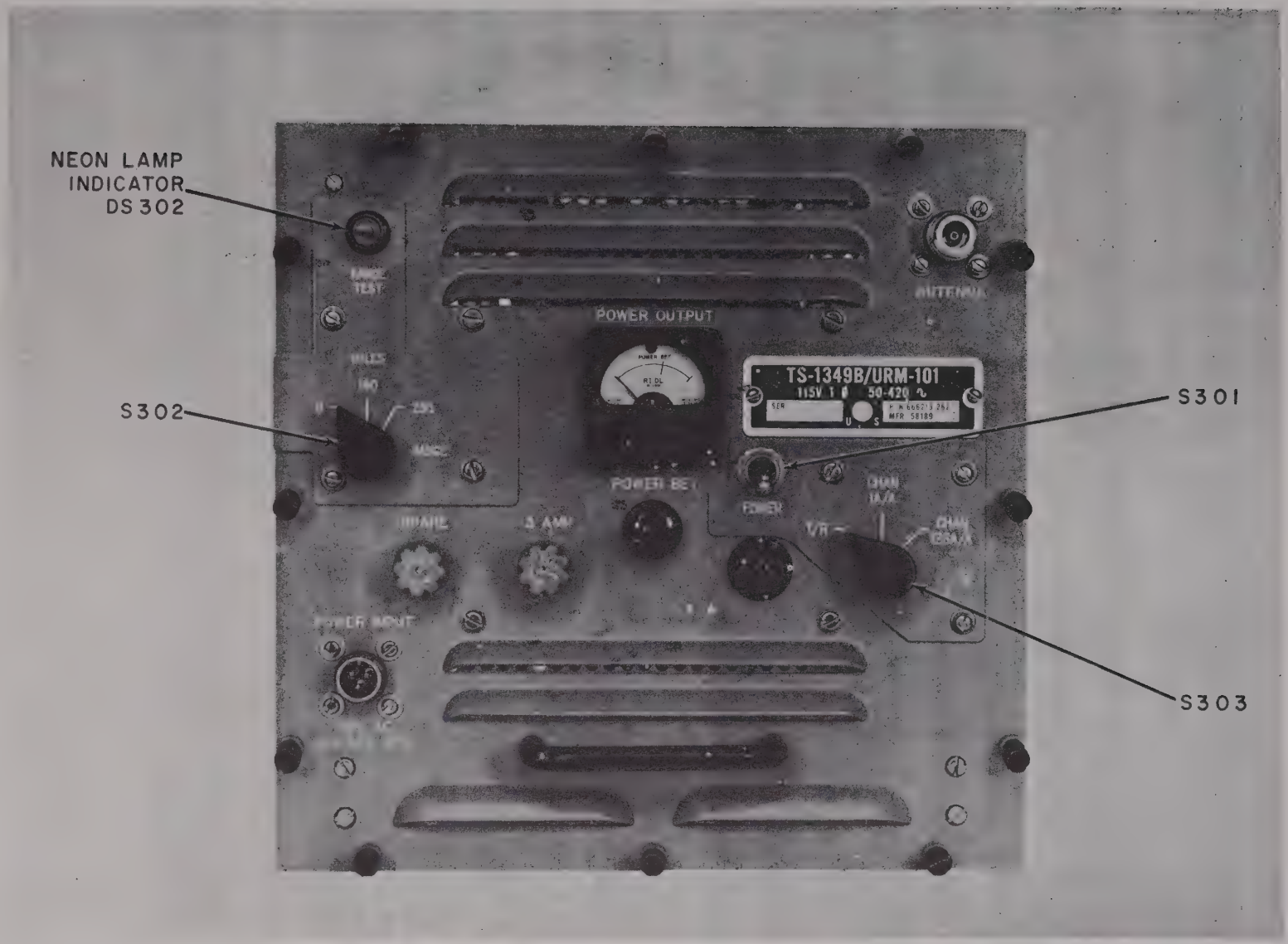


Figure 4-1. Radio Test Set TS-1349B/URM-101, Front Panel.

Always connect the smaller diameter end of the attenuator having bayonet pins on the BNC connector to the AN/ARN-21, as this end is designed to act as a dummy load for the radio set.

Failure to observe the above precautions may result in destruction of the crystal detector CR308, the crystal multiplier CR309, and the fixed attenuator.

4-9. OPERATING PROCEDURES.

4-10. DIRECT CONNECTION TO THE RADIO SET. To operate the test set when direct connection is desired to the equipment under test, proceed as follows:

a. Connect antenna to front panel ANTENNA jack. Connect fixed attenuator to antenna, and connect coaxial cable from radio set to it.

b. Apply 115-vac, 50 to 420-cps, single-phase power by connecting cable assembly to power source outlet and to front panel POWER INPUT receptacle.

c. Place front panel POWER ON switch in "upward" position. POWER ON indicator lamp will light.

Note

Allow a 20-minute warmup period before operating test set at low temperatures. Under extreme ambient temperature conditions, below 0 degrees C (32 degrees F) and above 35 degrees C (95 degrees F), turn test set off for approximately 15 seconds at the completion of warmup. This cycling will ensure proper operation of phantastron counters.

d. Adjust POWER SET knob, so that front panel POWER OUTPUT meter indicator needle is in line with POWER SET mark on face of meter.

e. Place RANGE switch and T/R CHAN 1 A/A, CHAN 126 A/A mode switch in desired position. The test set is now ready for operation, and visual and aural indications may be observed at radio set under test to determine whether it is in normal operating condition.

4-11. RADIATED TEST SIGNAL. To operate test set with a radiated test signal, connect antenna to front panel ANTENNA jack, and follow steps b. through e. of paragraph 4-10.

4-12. HOW TO TURN OFF THE EQUIPMENT. When it is desired to turn off equipment, place POWER ON switch in its "downward" position. The front panel meter needle will deflect back to the extreme counter-clockwise position, and POWER ON indicator lamp will go off.

SECTION V

PERIODIC INSPECTION, MAINTENANCE, AND LUBRICATION

5-1. GENERAL.

5-2. The test set, although a lightweight, compact and completely ruggedized equipment, is a highly precise and accurately calibrated instrument. Therefore, periodic inspection and routine preventive maintenance is of extreme importance to maintain the accuracy of the unit. It is suggested, that the operator observe the equipment while in use for any marked variation in its performance. Any such variation should be investigated promptly, and corrective measures taken as outlined in Section VI.

5-3. PERIODIC INSPECTION.

5-4. A recommended monthly schedule of inspection procedures is given in table 5-1.

5-5. LUBRICATION.

5-6. The moving parts in this equipment require no lubrication.

TABLE 5-1. INSPECTION SCHEDULE

What to Inspect	How to Inspect
General	Examine all resistors for burning, corrosion, and loose connections. Check all questionable resistors, resolder all loose connections and wipe away all dirt. Replace defective parts. Note Replacement of certain critical parts will require test set calibration. Inspect all tubes for accumulation of dirt and firmness in their sockets. Check all tube retainers for looseness, weak or broken springs. Inspect tube sockets, when tubes are removed, for loose, broken or corroded contacts.

TABLE 5-1. INSPECTION SCHEDULE (cont)

What to Inspect	How to Inspect
	Replace all defective tubes, tube sockets, and tube retainers. Wipe away all dirt, and corrosion, and secure connections. Inspect all coils for broken windings, loose connections, and accumulation of dirt. Replace where necessary, and wipe away all traces of dirt. Inspect power transformer for broken pins, loose connections, and accumulated dirt. Replace defective transformer, secure connections, and wipe away all traces of dirt.
Printed circuit board assemblies A101, A201, A601, and A801.	The inspection procedures for printed circuit board assemblies are identical with receiver-transmitter chassis except that there are no transformers on the printed circuit boards. Repeat proceding steps, and replace all defective circuit boards, if necessary. Wipe away all accumulated dirt.
Front Panel	Check front panel mounting screws, indicator lamp socket. POWER SET control knob, fuses and fuseholders, input and antenna receptacle, panel meter for loose mountings. Check all connections and wiring to the front panel for deterioration and wear. Check toggle switches for loose mountings. Visually, check the POWER OUTPUT meter for signs of damage. Check the entire front panel for accumulation of dirt. Replace all broken components. Tighten and secure all mountings, and replace or repair all damaged connections and wiring. Replace front panel meter if broken. Wipe away all traces of dirt.
Antenna and Attenuator	Examine for loose, broken or corroded contacts. Replace entire unit if damaged.

TABLE 5-1. INSPECTION SCHEDULE (cont)

What to Inspect	How to Inspect
Mixer Assembly	Examine connectors for loose, broken or corroded contacts. Replace entire unit if damaged. Examine cables to mixer assembly and replace if necessary.
Receiver-Transmitter Chassis	Note Be sure that cable assembly has been removed from POWER INPUT receptacle. Inspect all capacitors for discoloration, leaks, dirt, or loose connections. Replace all defective capacitors, wipe away all dirt, and secure connections.

SECTION VI

TROUBLESHOOTING

6-1. GENERAL.

6-2. This section provides instructions for troubleshooting the test set. These instructions are presented in table 6-4, which lists the indications of trouble, the probable causes of the trouble, and the necessary remedies to correct the trouble.

Recalibration of a repaired stage or circuit is given in Section VII, and appropriate references are given in the "Remedy" column of table 6-4. Refer to these sections and to the schematic diagram, figure 1-3, throughout the procedures of table 6-4.

6-3. TEST EQUIPMENT REQUIRED FOR TROUBLESHOOTING.

6-4. The test equipment required for troubleshooting the test set is listed in table 6-1.

TABLE 6-1. TEST EQUIPMENT REQUIRED FOR TROUBLESHOOTING

Name	AN Type	Application
Multimeter	AN/USM-223 or TS-352B/U	Monitoring and V & R readings
Oscilloscope	AN/USM-281 or AN/USM-140B	Observing waveforms
Double Pulse Generator	AN/PPM-1A	Pulse source
Uhf Signal Generator	AN/URM-64	Simulates TACAN interrogating signal
Variac	CN-16/U	Regulate input voltage

6-5. TEST POINTS.

6-6. The test set is provided with test points on printed circuit boards, Assembly A101 and Assembly A201, and the receiver-transmitter chassis. These test points provide minimum indications of the performance of a stage, circuit or assembly. Table 6-2 shows voltage waveforms. The "Trouble" column of the troubleshooting chart is referenced to table 6-2 to aid in identifying troubles. The test points are identified in figures 7-1 through 7-3, and the schematic diagram, figure 1-3.

6-7. TUBE SOCKET VOLTAGE AND RESISTANCE READINGS.

6-8. Voltage and resistance readings taken at the test set tube socket pins, are listed in table 6-3 as an aid to troubleshooting. These readings are made under the following conditions:

a. Voltage readings are made with a power input of 115 vac, with no signal input, and front panel POWER OUTPUT meter set to "POWER SET."

b. Voltages are positive dc unless otherwise indicated, and are measured to chassis ground.

c. A-c readings are taken with a 5000 ohms/volt meter, d-c readings with a 20,000 ohms/volt meter.

d. Resistance readings are made with the front panel POWER ON switch in the off position (downward), and with all tubes in their sockets. All internal adjustments set to the positions required for normal operation. Many of the voltages and resistances will vary with the settings of these adjustments.

e. Resistance readings are in ohms, except K = 1000 ohms and M = 1,000,000 ohms.

f. Printed circuit board assembly A101 has been treated with a protective varnish coating at the factory. When making voltage and resistance measurements on this printed circuit board it may be necessary to re-remove, or otherwise disturb this protective varnish coating, when making connections with test probes. If any of the varnish coating has been disturbed in the phantastron or sine wave generator circuits, as a result of testing, be sure to repair this varnish coating. These high impedance circuits require protection from moisture to ensure proper operation during conditions of frost and high humidity. Any moisture-resistant varnish meeting the requirements of Specification MIL-V-1137 can be used for making these repairs.

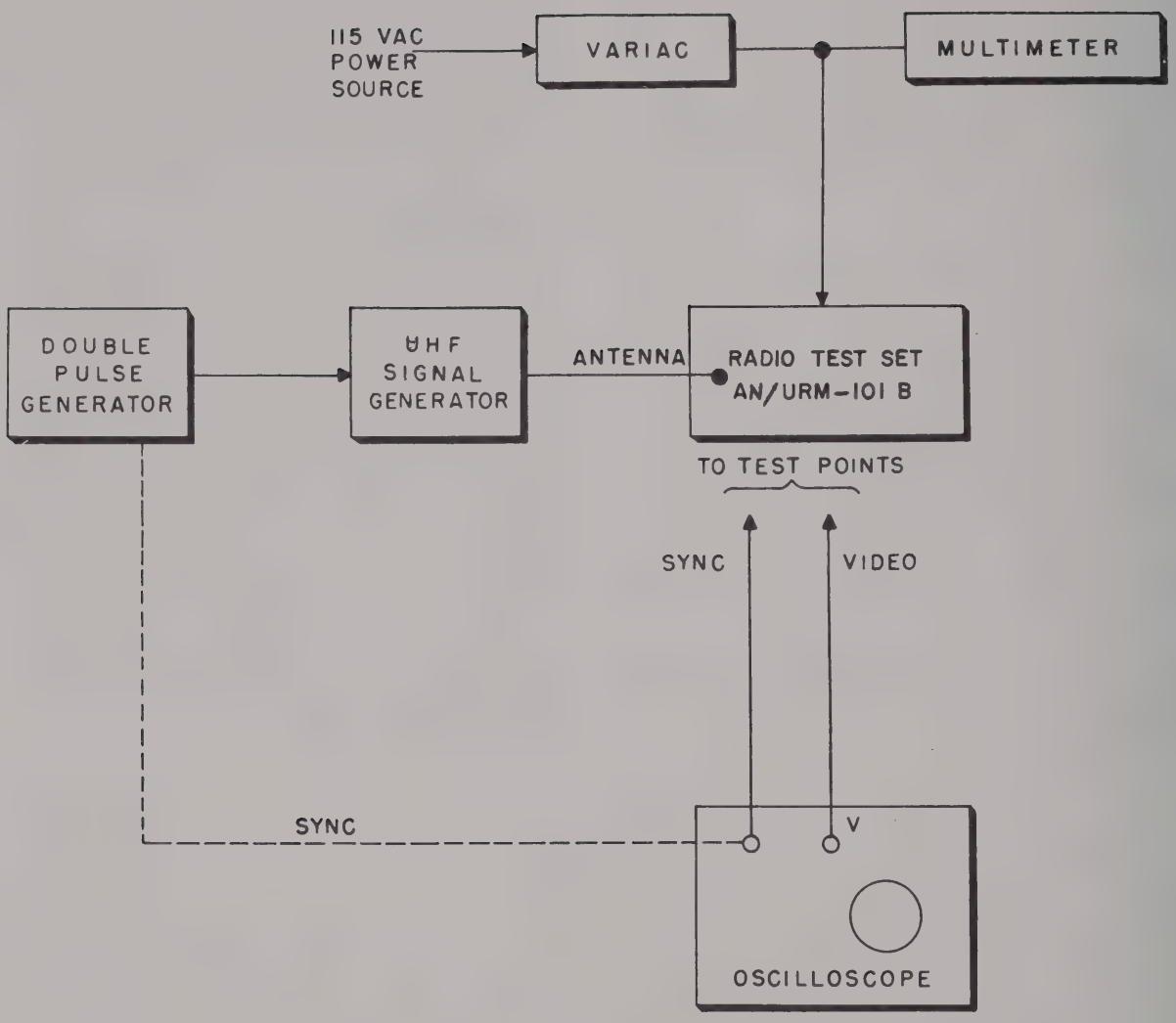
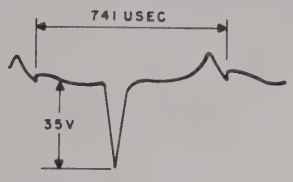
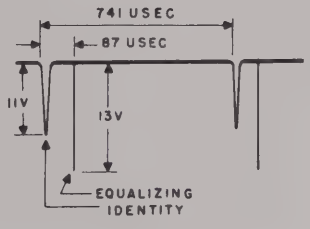
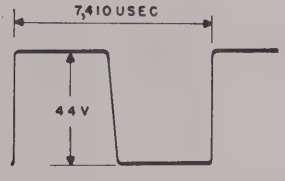
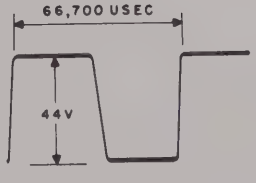


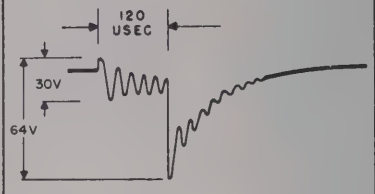
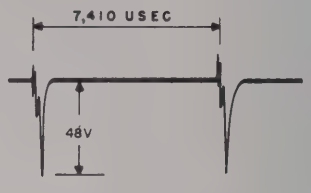
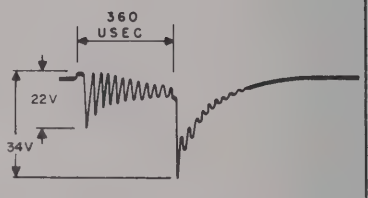
Figure 6-1. Troubleshooting Test Equipment Setup

TABLE 6-2. VOLTAGE WAVEFORMS

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
1	TP101	Setup test equipment per figure 6-1. Set oscilloscope vertical deflection to 10 volts/cm and horizontal sweep to 100 usec/cm.	Test point TP103 (+).	 Multivibrator Trigger
2	TP102	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 5 volts/cm and horizontal sweep to 100 usec/cm	Same as step 1.	 Tone Pulses
3	TP103	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 10 volts/cm and horizontal sweep to 1000 usec/cm.	Same as step 1.	 10:1 Countdown
4	TP104	Using same test equipment setup as in figure 6-1, set oscilloscope vertical deflection to 10 volts/cm, and horizontal sweep to 10,000 usec/cm.	TP104 (+)	 9:1 Countdown

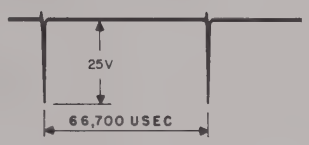
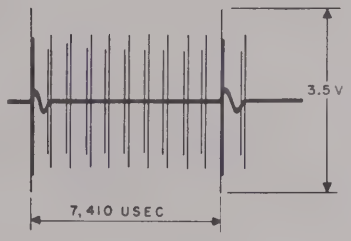
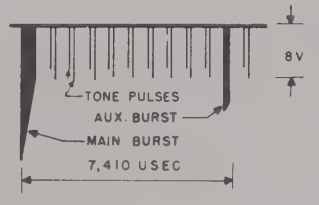
*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
5a	TP201	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 50 usec/cm.	TP103 (+)	 Auxiliary Burst Sine Wave Ring
5b	TP202	Same as above, except set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 1000 usec/cm.	TP103 (+).	 Auxiliary Burst (2)
6a	TP202	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 10 volts/cm and horizontal sweep to 100 usec/cm.	TP104 (+).	 Main Burst Sine Wave Ring

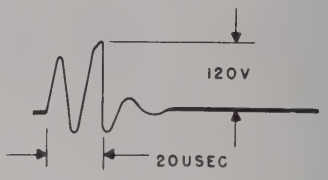
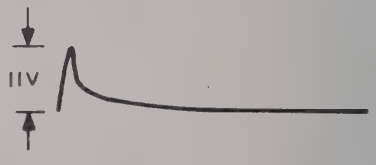
*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
6b	TP202	Same as above, except set oscilloscope vertical deflection to 10 volts/ cm and horizontal sweep to 10,000 usec/cm.	Same as above.	 Main Burst (2)
7	TP203	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 1 volt/cm and horizontal sweep to 1000 usec/cm	TP103 (+)	 Auxiliary Burst and Tone Pulses
8	TP204	Using same test equipment setup as in figure 6-1*, set oscolloscope vertical deflection to 5 volts/cm and horizontal sweep to 1000 usec/cm.	TP104 (+).	 Gate Output

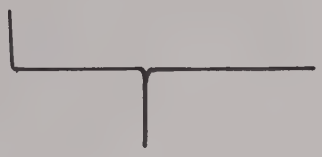
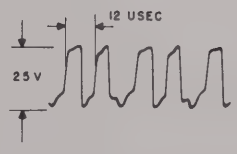
*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
9	TP205	Using same test equipment setup as in figure 6-1, set oscilloscope vertical deflection to 50 volts/cm and horizontal sweep to 10 usec/cm. Double pulse generator set for 200 pps, 4-usec pulse spacing. Signal generator set for +3 dbm output at 1027 mcs.	From pulse generator.	 Interrogating Pulse Pair Before Decoding
10	TP206	Using same test equipment setup as in figure 6-1, set oscilloscope vertical deflection to 5 volts/cm and horizontal sweep to 5 usec/cm. Double pulse generator set for 200 pps, 4-usec pulse width, and 12-usec pulse spacing. Signal generator set for +3 dbm output at 1027 mcs.	From pulse generator.	 Decoded Interrogating Pulse
11a	TP604	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 2 volts/cm and horizontal sweep to 10 usec/cm. Test set RANGE switch in "0 MILES" position. Double pulse generator set for 200 pps, 4-usec pulse width, and 12-usec pulse spacing. Signal generator set for +3 dbm output at 1027 mcs.	From pulse generator.	Delayed Pulse (0 MILES)

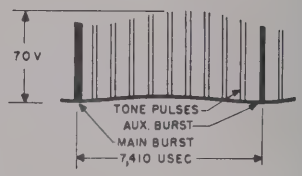
*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
11b	TP604	Same as above, except test set RANGE switch in "190 MILES" position and set oscilloscope vertical deflection to 2 volts/cm and horizontal sweep to 500 usec/cm.	From pulse generator.	 Delayed Pulse (190 MILES)
12a	TP301	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 10 volts/cm and horizontal sweep to 10,000 usec/cm.	TP104	Paired Pulse Train
12b	TP301	Same as above, except set oscilloscope vertical deflection to 10 volts/cm and horizontal sweep to 10 usec/cm.	TP104	 Pulse Pairing at Delay Line

*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
13a	TP302	Using same test equipment setup as in figure 6-1*, set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 10,000 usec/cm.	TP104	Modulated Pulse Train
13b	TP302	Same as above, except set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 1000 usec/cm	Same as above.	
13c	TP302	Same as above, except set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 100 usec/cm	Same as above.	Main Burst

*Signal generator and pulse generator not required for this test.

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

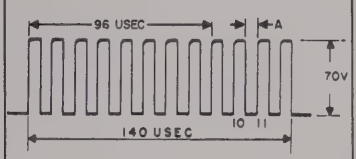
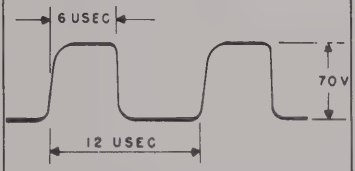
Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
13d	TP302	Same as above, except set oscilloscope vertical deflection to 20 volts/cm and horizontal sweep to 20 usec/cm. On test set, disable main burst by removing tube V203. Note that dimension "A" can be less than 6 usec to the extent that pulses 10 and 11 can merge.	Same as above.	 Auxiliary Burst
13e	TP302	Same as above, except set oscilloscope vertical deflection to 20 volts/ cm and horizontal sweep to 100 usec/cm. On test set, disable main burst by removing tubes V201 and V203.	TP104.	Tone Pulses
13f	TP302	Same as above, except set oscilloscope vertical deflection to 20 volts/ cm and horizontal sweep to 2 usec/cm.	Same as above	 Pulse Pair

TABLE 6-2. VOLTAGE WAVEFORMS (cont)

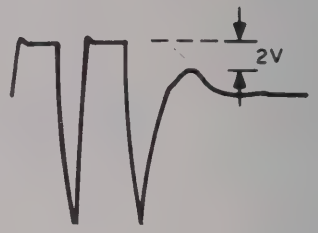
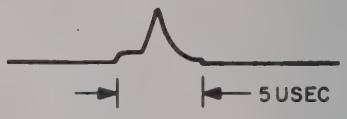
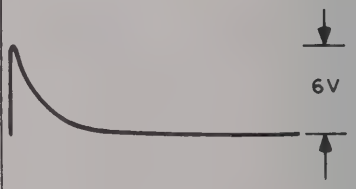
Step	Test Point	Instructions for Test	Scope Sync	Waveform Patterns
14	TP306	Using figure 7-1 to locate TP306, set oscilloscope vertical deflection to 2 volts/cm and horizontal sweep to 5 usec/cm, with 5x magnifier to OFF. (See paragraph 7-22.)	TP605	 Air-to-Air Interrogation Pulse Pair
15	TP602	Using same test equipment setup as in figure 7-5, set oscilloscope vertical deflection to 2 volts/cm and horizontal sweep to 10 usec/cm. Set 5x magnifier to ON. Test set function switch to CHAN 1 A/A. (See paragraph 7-29.)	TP605	 Range Test Pulse
16	TP605	Connect oscilloscope probe to TP605 in figure 7-6, set vertical deflection to 2 volts/cm and horizontal sweep to 5 usec/cm, with 5x magnifier turned to OFF. (See paragraph 7-23.)	Internal Positive Polarity	 Air-to-Air Interrogation Rate Pulse

TABLE 6-3. VOLTAGE AND RESISTANCE MEASUREMENTS

Tube and pin	Voltage to chassis	Resistance to chassis	Tube and pin	Voltage to chassis	Resistance to chassis
V301-1	6.3 ac	0	V305-1	-0.25	11 k
-2	0	0	-2	0	1
-3	0.35	500 k	-3	0	0
-4	19	60 k	-4	6.3 ac	0
-5	0	0	-5	155	20 k
-6	82	55 k	-6	50	140 k
-7	-3.5	470 k	-7	0	1
-8	0.2	100			
-9	0	0			
V302-1	6.3 ac	0	V306-1	2.3	11 k
-2	2.4	12 k	-2	0	0
-3	1.8	27 k	-3	0	0
-4	55	60 k	-4	6.3 ac	0
-5	0	0	-5	155	22 k
-6	48	60 k	-6	2.5	3.3 k
-7	-0.3	1M	-7	0	0
-8	0	0			
-9	0	0			
V303-1	6.3 ac	0	V307-1	-0.4	940
-2	16	2.2 k	-2	0	0
-3	0	190 k	-3	0	0
-4	155	50 k	-4	6.3 ac	0
-5	0	0	-5	2.5	3.3 k
-6	58	30 k	-6	2.5	3.3 k
-7	16	500 k	-7	0	0
-8	16	2.2 k			
-9	0	0			
V304-1	0	0	V308-1	108	23 k
-2	5.8	5 k	-4	0	0
-3	0	1.2M	-5	108	23 k
-4	155	20 k			
-5	0	0			
-6	155	20 k			
-7	0	1.2M			
-8	5.8	5 k			
-9	6.3 ac	0			

TABLE 6-3. VOLTAGE AND RESISTANCE MEASUREMENTS (cont)

Tube and pin	Voltage to chassis	Resistance to chassis	Tube and pin	Voltage to chassis	Resistance to chassis
ASSEMBLY A101			ASSEMBLY A201		
V101-1	0	0	V201-1	6.3 ac	0
-2	22	3.9 k	-2	13	1.8 k
-3	11	22 k	-3	0	22 k
-4	115	60 k	-4	160	34 k
-5	0	0	-5	0	0
-6	58	38 k	-6	96	28 k
-7	18	200 k	-7	9	96 k
-8	22	3.9 k	-8	13	1.8
-9	6.3 ac	0	-9	0	0
V102-1	19	1.2M	V202-1	6.3 ac	0
-2	21	6.8 k	-2	2.3	1.5 k
-3	0	0	-3	0	820 k
-4	6.3 ac	0	-4	100	60 k
-5	50	44 k	-5	0	0
-6	113	28 k	-6	44	24 k
-7	24	140 k	-7	-0.2	1.2M
			-8	0	0
			-9	0	0
V103-1	0	0	V203-1	6.3 ac	0
-2	0	0	-2	12	1.5 k
-3	-0.6	2M	-3	10	94 k
-4	80	60 k	-4	105	26 k
-5	0	0	-5	0	0
-6	65	46 k	-6	135	38 k
-7	-0.3	2M	-7	0	47 k
-8	0	0	-8	12	1.5 k
-9	6.3 ac	0	-9	0	0

TABLE 6-3. VOLTAGE AND RESISTANCE MEASUREMENTS (cont)

Tube and pin	Voltage to chassis	Resistance to chassis	Tube and pin	Voltage to chassis	Resistance to chassis
V104-1	16	2 m	V204-1	0	2.7 k
-2	19	6.8 k	-2	6.6	10 k
-3	0	0	-3	0	0
-4	6.3 ac	0	-4	6.3 ac	0
-5	47	48 k	-5	145	46 k
-6	110	28 k	-6	155	20 k
-7	24	60 k	-7	0.6	500 k
V205-1	6.3 ac	0	V206-1	15	900 k
-2	0	0	-2	15	3 k
-3	0.4	560 k	-3	0	0
-4	45	45 k	-4	6.3 ac	0
-5	0	0	-5	108	48 k
-6	50	34 k	-6	64	30 k
-7	0.6	700 k	-7	6.8	48 k
-8	0	0			
-9	0	0			

6-9. TROUBLESHOOTING PRECAUTIONS.

6-10. Before proceeding to troubleshoot, the following precautions should be noted:

a. Do not replace a fuse with one of a higher rating, unless continued operation is more important than probable equipment damage.

b. A tube tester is not always a reliable method of checking for defective tubes. Substitute tubes that are known to be good.

c. When unsoldering and removing parts, note carefully the position of the leads. Tag each lead with an easily identifiable marking. In the case of a multilead part, such as a transformer, tag each lead separately.

d. Be careful not to loosen connections or damage adjacent components when servicing the bottom of the receiver-transmitter chassis.

e. Solder connections carefully, so as not to create additional trouble. Poorly soldered connections may result in intermittent operation, and they are difficult to locate.

f. When repairing a printed circuit board, use a small soldering iron, applied to the printed wiring, to heat the area. Use only enough heat to cause the solder to flow. Overheating may damage the phenolic board. To repair a larger break in the wiring, solder an insulated jumper wire between the two pins originally connected by the broken wiring.

g. When replacing small parts, such as a resistor or a capacitor, apply heat from a small soldering iron to the pin to which the wire terminal is connected. When the solder at the pin melts, pull the appropriate wire from the pin. Repeat this at the other end. When replacing the part, mount it close to the board, and clip off any excess wire that protrudes from the front of the pin.

CAUTION

Any solder that remains on the outside of a plug pin will prevent the entry of the pin into the socket holes of the mating connector. Keep solder pins and tube sockets clean.

h. When replacing semiconductor diodes, heat sink a portion of the diode lead adjacent to the diode body. This can be done easily with a pair of long nose pliers.

i. Certain semiconductor diodes in Radio Test Set AN/URM-101A have been replaced with types different than those used in Radio Test Set AN/URM-101. When replacing these diodes, it is mandatory to use the type specified for Radio Test Set AN/URM-101A. Refer to Appendix D for further details.

j. Resistor R123 in Radio Test Set AN/URM-101A is a thermistor which replaces the fixed resistor used in Radio Test Set AN/URM-101. When replacing this item in Radio Test Set AN/URM-101 it is permissible to use the type specified for Radio Test Set AN/URM-101A. Refer to Appendix D for further details.

6-11. TROUBLESHOOTING PROCEDURES.

6-12. To troubleshoot the test set, follow the procedures given in table 6-4. The troubleshooting procedures given in the table are to be used with reference to the voltage waveforms, table 6-2.

TABLE 6-4. TROUBLESHOOTING

Trouble	Probable Cause	Remedy
PRIMARY POWER		
Test set inoperative; POWER ON indicator lamp does not light, when POWER ON switch is in the "upward position.	Blown fuse F301. Poor connection to power source or power failure at power source.	Replace F301 with SPARE fuse. Check power connection, and check power source. Replace POWER ON indicator lamp. When indicator lamp is replaced and tubes do not light, trouble is in the power supply. If power is on at source and connection is good, check for 115 vac between pins 1 and 2 of T301. Replace cable assembly. If indication is normal, trouble is in power supply.

TABLE 6-4. TROUBLESHOOTING (cont)

Trouble	Probable Cause	Remedy
POWER SUPPLY		
Tube filaments do not light.	Defective transformer T301.	Check for 6.3 vac between pin 5 and ground. Replace transformer T301 if defective.
No 130-v d-c B+ voltage.	Same as previous step, except: Defective bridge rectifier diodes CR304, CR305, CR306 and CR307, or resistor R352, or shorted electrolytic capacitors C330 and C331.	Check for +130 vdc between junction of resistor R354 and filter capacitor C330 and chassis ground (multimeter positive lead to C330; negative lead to chassis ground). Check point 3 on schematic diagram.
No 150-v d-c B+ voltage.	Same as previous step, except inductor L311 or resistor R353 may also be defective	Check for +150 vdc between junction of resistor R353 and filter capacitor C330 and chassis ground. Check point 1.
No 108-v d-c B+ voltage.	Same as previous step, except filter components, resistor R354 or tube V308 defective.	Check for +108 vdc between pin 5 of V308 and chassis ground. Check point 2. Check tube V308 by substitution.

TABLE 6-4. TROUBLESHOOTING (cont)

Trouble	Probable Cause	Remedy
ASSEMBLY A101		
No 1350-cps V101 triggering pulse at test point TP101. (See table 6-2, step 1.)	Tube V301A or tuned circuit Z301 defective.	Replace tube, make voltage measurements and continuity check to locate faulty components.
No negative unpaired identity and equalizing pulses at test point TP102. (See table 6-2, step 2.)	Defective tube V101 or potentiometer R106.	Replace tube, make voltage measurements. Make resistance check of R106. If defective, replace R106. Make continuity check to locate faulty components. Refer to paragraph 7-8 to recalibrate the stage.
No 10:1 countdown signal at test point TP103. (See table 6-2, step 3.)	Defective tube V102 or diode CR101.	Replace tube, make voltage measurements. Make continuity check to locate faulty components. Refer to paragraph 7-9 to recalibrate the stage.
No 9:1 countdown signal at test point TP104. (See table 6-2, step 4.)	Defective tube V104 or diode CR102.	Replace tube, make voltage measurements. Make continuity check to locate faulty components. Refer to paragraph 7-10 to recalibrate the stage.

TABLE 6-4. TROUBLESHOOTING (cont)

Trouble	Probable Cause	Remedy
ASSEMBLY A201		
No main burst sine wave train at test point TP202 as shown in step 6 of table 6-2.	Defective tube V203 or associated components.	Replace defective tube V203. Check for faulty stage components, and replace. Check for defective R221 or L202, and replace if necessary. See paragraph 7-11 for calibration procedures.
No auxiliary burst sine wave train at test point TP201 as defined in step 5 of table 6-2.	Defective tube V201 or associated stage components.	Replace defective tube V201. Check for faulty stage components, and replace. Check for defective R202 and L201, replace if necessary. See paragraph 7-12 for calibration procedures.
No unpaired auxiliary burst, identity, equalizing, or interrogating pulses at test point TP203 as shown in step 7 of table 6-2.	Defective tube V202 or associated stage components.	Replace defective tube V202. Check for faulty components C206, C207 or R213.
No unpaired pulse train at test point TP204 as shown in step 8 of table 6-2.	Defective tubes V202, V204 or associated stage components.	Replace defective tubes V202 or V204. Check for faulty coupling capacitor C208.

TABLE 6-4. TROUBLESHOOTING (cont)

Trouble	Probable Cause	Remedy
No (undecoded) interrogating signal at test point TP205, as shown in step 9 of table 6-2.	Defective tubes V205, V302, diode CR308 or associated components. Defective adjustment L203.	Replace V205, V302 or CR308, and replace L302, if defective. Check for faulty associated components and replace.
No (decoded) interrogating signal at test point TP206 as shown in step 10 of table 6-2.	Defective diode CR201 or same components in previous step.	Replace diode CR201. Check tube V205 and associated components. See paragraph 7-19 for calibration procedures.
No delayed reply pulse at test point TP207 as shown in step 11 of table 6-2.	Defective tube V206, or RANGE switch S302.	Replace tube V206. Check for defective switch S302 resistance on receiver-transmitter chassis.
	Loss of 5-mile delay indicates a faulty potentiometer R351.	If there is no 5-mile delay, check potentiometer R351.
	No 100-mile delay indicates faulty potentiometer R350.	If there is no 100-mile delay, check potentiometer R350. (see figure 7-1 to locate the potentiometers.) Check the range delay stage for faulty circuit components. See paragraph 7-21 for calibration procedures.

TABLE 6-4. TROUBLESHOOTING (cont)

Trouble	Probable Cause	Remedy
RECEIVER-TRANSMITTER CHASSIS		
No complete train at test point TP301 as shown in step 12 of table 6-2.	Defective tube V301, or associated components, or delay line DL301.	Replace tube V301. Check for faulty components and DL301, and replace if necessary.
No complete modulated pulse train at test point TP302 as shown in step 13 of table 6-2.	Defective tubes V303 or V304, or associated components.	Check V303 and V304 by substitution, and if defective, replace.
	Defective printed circuit board assemblies A101 or A201.	Check associated circuit components, and replace if necessary. If this does not correct the fault, recheck the stages of the printed circuit board assemblies A101 or A201. Replace A101 and A201.
No transmitted and received pulse with the probe of the oscilloscope at the junction of the harmonic balance adjustment R344 and coil L307.	Defective V305, V306, V307, CR309, or defective printed circuit board assemblies A101 or A201. Defective transmitter.	Check V307, V305, V306 and CR309 by substitution, and if defective, replace. Recheck the stages of assemblies A101 and A201. Check the transmitter circuits, and replace faulty components. See paragraph 7-16 for calibration procedures.

SECTION VII

CALIBRATION

7-1. GENERAL.

7-2. This section presents procedures for realigning, readjusting, or retuning the test set after it has been repaired or when there is indication that a stage or circuit requires calibration. If an assembly has been repaired or an entire assembly replaced, the procedures of this section may be used to check the reliability of a repaired or new assembly. Each calibration procedure is concluded with approximate values to aid the maintenance worker in determining the reliability of the indications of a properly calibrated test set. The procedures are outlined in progressive order presupposing that the preceding steps have been accomplished correctly, and that succeeding indications are dependent on this fact.

7-3. The only corrective action deemed necessary beyond the troubleshooting (section VI) and the calibration procedures of this section, if maintenance workers fail to obtain the prescribed indications of test set reliability, will be to substitute new assemblies, where possible, for suspected ones.

7-4. PRE-CALIBRATION NOTES.

7-5. Before calibrating the test set, use the calibration checks provided in table 7-2, which summarizes the normal indications at the various test points or appropriate strategic points. These checks are referenced to the voltage waveforms (table 6-2) of section VI. The voltage waveform patterns should be observed throughout the calibration procedures to obtain a correctly calibrated test set. Figures 7-1 through 7-3 identify the test points and adjustments and their physical locations on the equipment. Table 7-1 lists the equipment required for calibration, and figure 7-4 illustrates the general test equipment setup used during calibration.

7-6. Observe the following general notes throughout the calibration procedures:

a. Calibration procedures should be accomplished in order given, unless when it is desired to recalibrate a particular stage, circuit, or assembly.

b. Operate test set from 115 ±2-v a-c, 60-cps regulated power source.

c. Allow test set to warm up at least 20 minutes before calibration.

d. To disable main burst, short pin 7 (triggered grid) of tube V203 to chassis ground.

e. To disable auxiliary burst, short pin 3 (triggered grid) of tube V201 to chassis ground.

f. To disable both 15-cps sine wave and 135-cps sine wave, remove tube V103 from its socket.

g. To disable 15-cps sine wave only, bypass either end of resistor R132, located on Assembly A101, with a 1-uf capacitor to chassis ground.

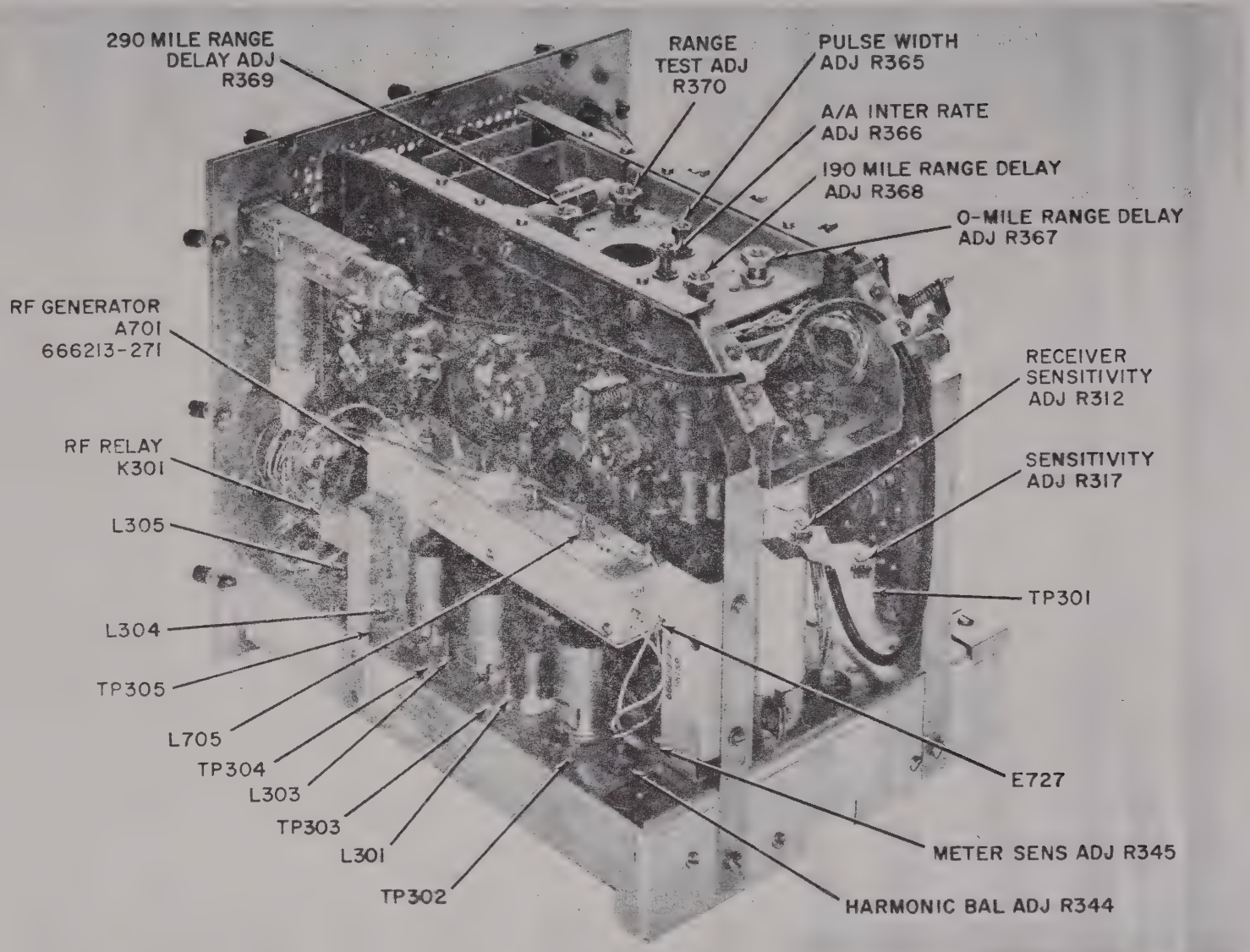


Figure 7-1. Receiver-Transmitter Chassis, Location of Test Points and Adjustments

h. To disable 135-cps sine wave only, connect a 1-uf bypass capacitor to either end of resistor R121 (Assembly A101) and chassis ground.

i. After each final setting of an adjustable control, tighten locking nut with care to avoid shifting control setting.

7-7. CALIBRATION PROCEDURES.

7-8. ADJUSTMENT OF THE IDENTITY-TO-EQUALIZING PULSE SPACING. To adjust the identity-to-equalizing pulse spacing, set up the test equipment with the test set as shown in figure 7-4. Proceed as follows:

a. Connect oscilloscope probe to test point TP102.

b. Synchronize oscilloscope horizontal sweep with internal negative (-) polarity.

c. Loosen and adjust identity-to-equalising pulse spacing adjustment potentiometer R106 (figure 7-2) until pulse spacing is 87 usec between leading edges. Pulse amplitudes of both the identity pulse and the equalizing pulse should be approximately 12v peak. (Waveshape same as table 6-2. step 2.)

d. Secure locking nut of R106.

7-9. ADJUSTMENT OF THE 10:1 COUNTDOWN. Using the same test equipment setup as used in paragraph 7-8, adjust the 10:1 countdown output as follows:

a. Connect oscilloscope probe to test point TP103.

b. Synchronize oscilloscope horizontal sweep with internal positive (+) polarity.

TABLE 7-1. TEST EQUIPMENT REQUIRED FOR CALIBRATION

Name	AN Type	Application
Oscilloscope	AN/USM-281 or AN/USM-140B	Signal display
Uhf Signal Generator	AN/URM-64	Signal Source
Uhf Receiver	AN/APR-9B with Tuning Head	Signal reception
10 db Pad	CN-797/U	Attenuation
Variac	CN-16/U	Voltage Regulation
Double Pulse Generator	AN/PPM-1A	Pulse source

TABLE 7-1. TEST EQUIPMENT REQUIRED FOR CALIBRATION (cont)

Name	AN Type	Application
Multimeter	AN/USM-223 or TS-352B/U	Measuring and monitoring
Alignment Tool	Common	Tuning and alignment
Coaxial Cable, 50 ohms	RG-9A/U	Interconnection

TABLE 7-2. CALIBRATION CHECKS

What to Check	How to Check
Note Use steps 2, 3, 7, 8, and 12 as a quick check. It should be noted however, that signal patterns taken from these test points, to determine test set accuracy, are not conclusive.	
1. Identity-to-Equalizing Pulse Spacing	Check waveform at TP102. See table 6-2, step 2. Refer to paragraph 7-8 for calibration.
2. 10:1 Countdown Timing	Check waveform at TP103. See table 6-2, step 3. Refer to paragraph 7-9 for calibration.
3. 9:1 Countdown Timing	Check waveform at TP104. See table 6-2, step 4. Refer to paragraph 7-10 for calibration.
4. Main Reference Pulse Group Sine Wave Train (Main Burst)	Check waveform at TP202. See table 6-2, step 6. Refer to paragraph 7-11 for calibration.
5. Auxiliary Reference Pulse Group Sine Wave Train (Auxiliary Burst)	Check waveform at TP201. See table 6-2, step 5. Refer to paragraph 7-12 for calibration.

TABLE 7-2. CALIBRATION CHECKS (cont)

What to Check	How to Check
6. Pulse Width	Check waveform at TP302. See table 6-2, step 13. Refer to paragraph 7-13 for calibration.
7. Phase of 135-cps Sine Wave Generator	Check by obtaining correct 140-degree bearing readings on an AN/ARN-21 radio set that is known to be in good working condition. Refer to paragraph 7-14 for calibration.
8. Phase of 15-cps Sine Wave Generator	Check by obtaining correct 140-degree bearing readings on an AN/ARN-21 radio set that is known to be in good working condition. Refer to paragraph 7-15 for calibration.
9. Transmitter Tuning	Refer to paragraph 7-16 for calibration.
10. Equalized R-F Output	Check equalized r-f output at ANTENNA receptacle J302. Refer to paragraph 7-17 for calibration.
11. R-F Output Power Level	Check -30 ±2 dbm peak output power at ANTENNA receptacle J302. Refer to paragraph 7-18 for calibration.
12. Complete Modulated Pulse Train	Check Waveform at TP302. See table 6-2, step 13. Refer to individual calibration procedures.
13. Undecoded Interrogating Pulse	Check undecoded pulse at TP205. See table 6-2, step 9.
14. Decoded Interrogating Pulse	Check decoded pulse at TP206. See step 10 of table 6-2, Refer to paragraph 7-19 for calibration.
15. Receiver Sensitivity and Range Delay	Check receiver sensitivity by observing delayed pulse at TP207. See table 6-2, step 11. Refer to paragraph 7-20 to adjust receiver sensitivity, and paragraph 7-21 to adjust range delay.
16. Transmitted and Received Pulses	Check transmitted and received pulses by placing oscilloscope probe at the junction of R344 and L307. (Waveshape will be similar to table 6-2, steps 13a. through f., except amplitude is approximately 0.1v peak.)

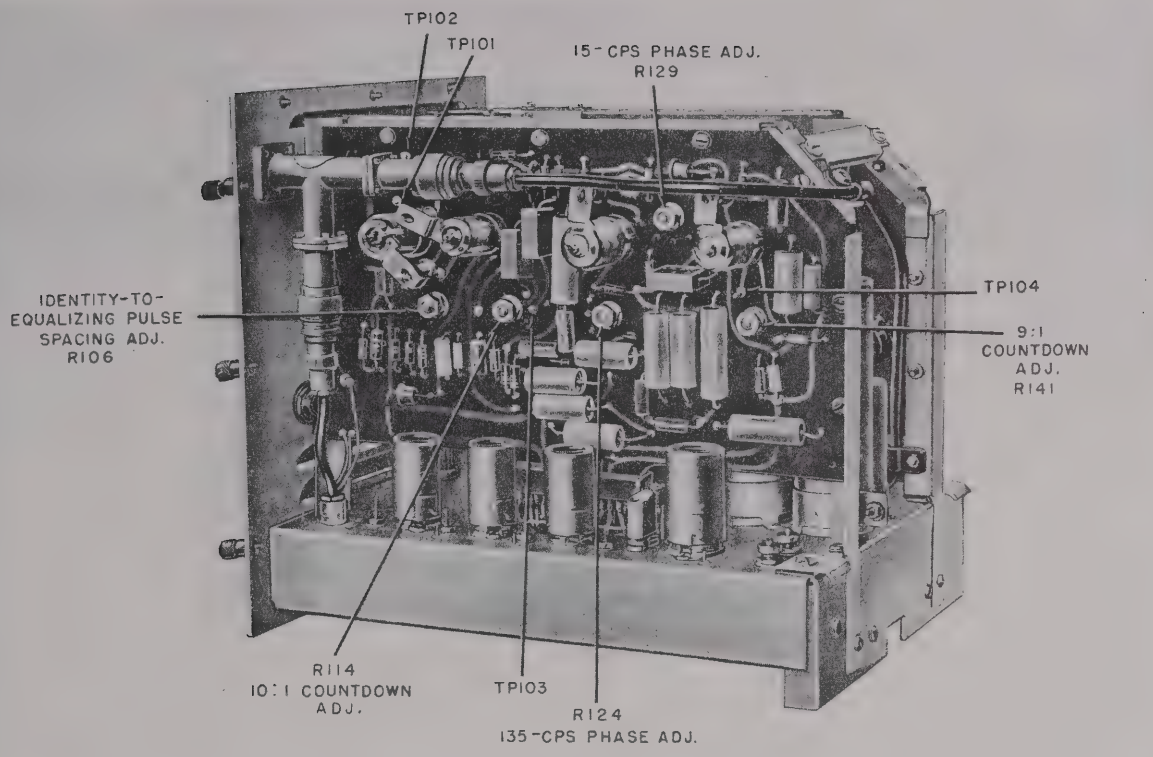


Figure 7-2. Assembly A101, Location of Test Points and Adjustments

c. The 10:1 countdown adjustment potentiometer R114 must be set to obtain a square wave period of 7410 usec for 1 cycle as shown in table 6-2, step 3 for TP103. Loosen locking nut, and carefully adjust R114 to center of limits where count changes. Square wave level should be approximately 44 v peak-to-peak.

d. Tighten locking nut of R114.

7-10. ADJUSTMENT OF THE 9:1 COUNTDOWN. Using test equipment setup as in figure 7-4, adjust 9:1 countdown output as follows:

a. Connect oscilloscope probe to test point TP104.

b. Synchronize oscilloscope horizontal sweep with internal positive polarity.

c. The 9:1 countdown adjustment potentiometer R141 must be set to obtain a square wave period of 66.700 usec per cycle as shown in table 6-2, step 4 for TP104. Loosen locking nut, and carefully adjust R141 to center of limits where the count changes. Square wave level should be approximately 44 v peak-to-peak.

d. Carefully secure the locking nut of R141.

7-11. ADJUSTMENT OF THE MAIN BURST. To adjust main burst (main reference pulse group), follow steps outlined below:

a. Using same test equipment setup, connect oscilloscope probe to test point TP204.

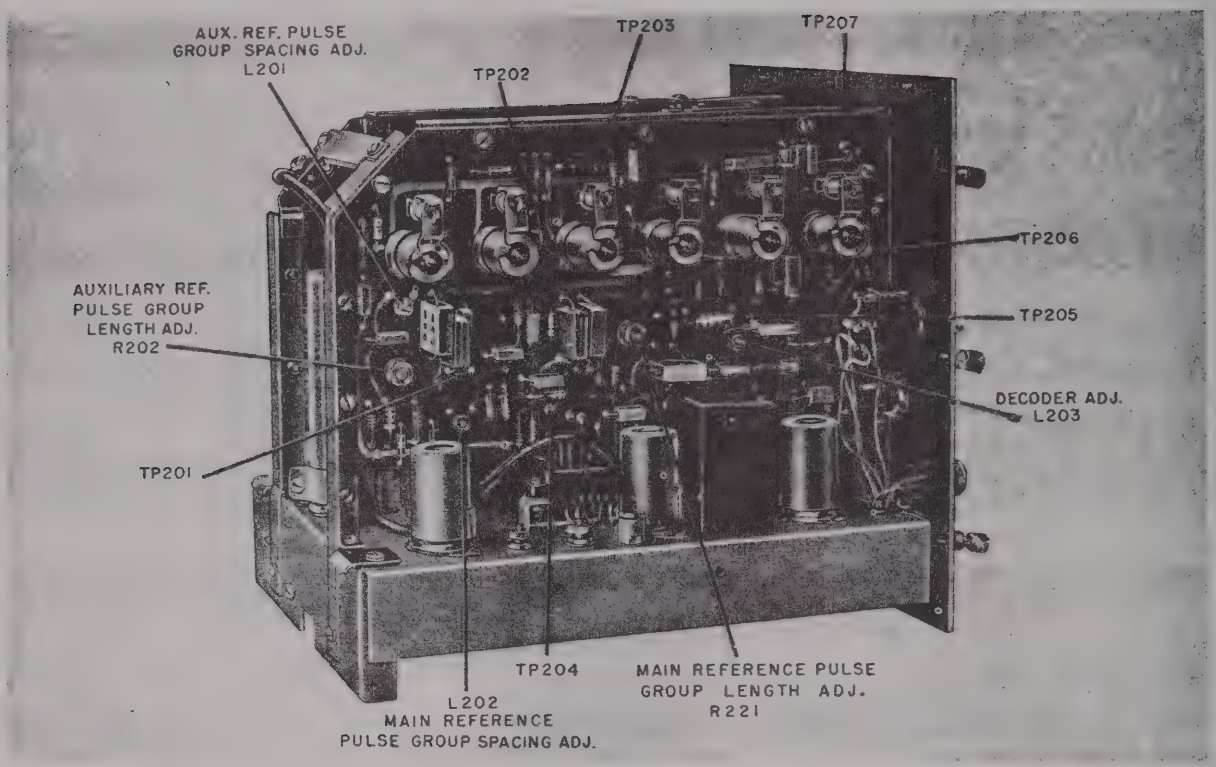


Figure 7-3. Assembly A201, Location of Test Points and Adjustments

b. Synchronize oscilloscope with positive polarity from test point TP104, and set sweep speed to view main burst.

c. Loosen locking nut on main reference pulse group length adjustment potentiometer R221, and adjust R221 for maximum number of pulses in burst.

d. Adjust L202 (main reference pulse group spacing adjustment) for 30-usec pulse spacing by setting four pulses to span exactly 90 usec from start-to-start. Because first pulse of burst may have slightly nonuniform spacing, start measuring with second pulse.

e. Check R221 for 12 pulses and carefully center. Secure locking nut.

f. Check amplitudes of paired pulses. Amplitudes should be approximately -20 v peak for first pulse and approximately -8 v peak for second pulse.

7-12. ADJUSTMENT OF THE AUXILIARY BURST. To adjust auxiliary burst (auxiliary reference pulse group), disable main burst multivibrator per paragraph 7-6, and proceed as follows:

a. Using equipment setup per figure 7-4, connect the oscilloscope probe to test point TP204. Synchronize the oscilloscope with positive polarity from test point TP103, and set sweep speed to view auxiliary burst.

b. Loosen locking nut on auxiliary reference pulse group length adjustment potentiometer R202, and adjust R202 for maximum number of pulses in burst.

c. Adjust L201, auxiliary reference pulse group spacing adjustment, for 24-usec pulse spacing by setting five pulses to span exactly 96 usec from start-to-start. Because first pulse of burst may have slightly nonuniform spacing, start measuring with second pulse.

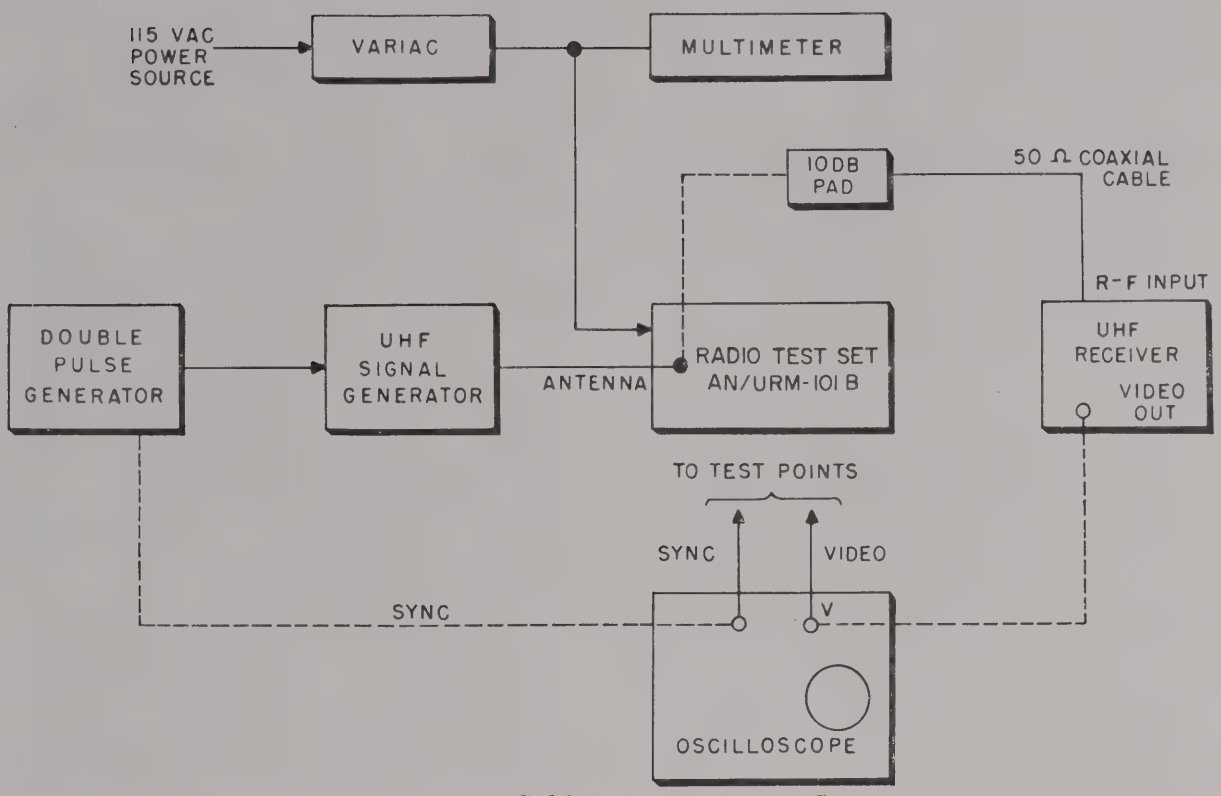


Figure 7-4. Calibration Equipment Setup

d. Set R202 for 6 pulses, and center carefully. First pulse amplitude should be approximately -9 v peak; sixth pulse amplitude should be approximately -4 v peak.

e. Tighten locking nut of R202, and remove short from V203.

7-13. ADJUSTMENT OF THE PULSE WIDTH. To adjust, follow the steps outlined below:

a. Disable sine wave modulation by removing tube V103.

b. Connect oscilloscope probe to test point TP302.

c. Synchronize the oscilloscope with external positive polarity from TP104, and adjust sweep speed to view main burst.

d. Adjust sensitivity adjustment potentiometer R317 (see figure 7-1) counterclockwise until the main burst consists of exactly 12 double pulses. (Do not retighten locknut.)

e. Readjust sweep speed to view third pulse of main burst. (First pulse of second pulse pair.)

f. Refer to figure 7-1, adjust pulse width adjustment potentiometer R365 for a pulse width of 6 usec at 50 percent amplitude. Pulse amplitude should be approximately 70 volts.

g. Tighten locking nut on R365 and replace tube V103.

7-14. THE 135-CPS SINE WAVE PHASE ADJUSTMENT. If 135-cps sine wave is out

of phase, observe required pattern prescribed in table 6-2, step 13b, and adjust as follows:

a. Disable 15-cps sine wave as described in paragraph 7-6g.

b. Disable main burst as described in paragraph 7-6d.

c. Connect oscilloscope probe to test point TP302.

d. Synchronize oscilloscope through pulse generator at test point TP103. Use positive sync.

e. Adjust oscilloscope horizontal sweep to obtain two auxiliary bursts at either end of horizontal scale; this represents a 360-degree cycle from start-to-start. Adjust oscilloscope vertical position so that sine wave has equal plus and minus peaks about horizontal axis. Apply as much vertical gain as possible, allowing base line of trace to go off screen at the bottom.

f. Loosen locking nut of 135-cps phase adjustment potentiometer R124 and using alignment tool, adjust R124 for 180-degree phase of sine wave defined by peaks of pulses. The fifth identity pulse (considering first pulse of the pair only) coincides with 180 degrees, therefore phase must be set to place top of this pulse on horizontal axis. Thus, positive-going axis crossover of sine wave is set to 180-degree phase with respect to auxiliary burst at 0 and 360 degrees.

g. Check amplitude of sine wave. Minimum-to-maximum pulse height should be approximately 8v.

h. Secure locking nut of R124, and remove bypass capacitor and short from pin 7 of V203.

7-15. THE 15-CPS SINE WAVE PHASE ADJUSTMENT. If 15-cps sine wave is not in phase as prescribed in table 6-2, step 13a, use the following procedure to readjust phase of sine wave.

a. Disable 135-cps sine wave as described in paragraph 7-6h.

b. Using test setup per figure 7-4, connect oscilloscope probe to test point TP302, and synchronize with positive polarity at test point TP104.

c. Adjust oscilloscope horizontal sweep to obtain two main bursts, at either end of the horizontal scale, representing a 360-degree cycle from start-to-start. Adjust oscilloscope vertical position, so that sine wave has equal plus and minus peaks about horizontal axis. Apply as much vertical gain as possible allowing base line of trace to go off screen at the bottom.

d. Loosen locking nut of 15-cps phase adjustment potentiometer R129.

e. Using alignment tool, set R129 for a 140-degree sine wave phase, defined by peaks of pulses. The positive-going axis crossover of sine wave should be set at 140-degree point on horizontal scale, which is 0.39 v from start. (1.0 being horizontal spacing between two main bursts, start-to-start, or 360 degrees.)

f. Check amplitude of sine wave. Minimum-to-maximum height should be approximately 8 v.

g. Secure locking nut of R129 and remove bypass capacitor from R121.

7-16. TRANSMITTER TUNING. To tune the r-f unit, proceed as follows:

a. Turn POWER SET knob to its maximum clockwise position.

b. Connect multimeter to test points indicated below, and peak indicated coils to corresponding maximum d-c voltage.

Test Point	Coil	Approximate d-c volts
TP303	L301	-0.13
TP304	L303	-0.45
TP305	L304	-0.06

c. Repeak coil L301 at test point TP304 to maximum -0.6 vdc.

d. Connect antenna to ANTENNA receptacle.

e. Peak coil L305 for maximum r-f level deflection on front panel POWER OUTPUT meter, while backing off maximum clockwise setting of POWER SET knob to keep meter reading on scale, sensitivity of meter is controlled by R345.

f. Tighten all locking nuts, and remove multimeter.

7-17. EQUALIZING THE 964-MCS AND 1205-MCS R-F OUTPUTS. To obtain a final setting of the POWER OUTPUT meter, the transmitter output frequencies must be adjusted for equal amplitudes. Proceed with the following steps to equalize transmitter outputs.

a. Disable sine wave modulation by removing tube V103.

b. Adjust POWER SET control knob until POWER OUTPUT meter reads "POWER SET."

c. Connect gain-calibrated uhf receiver through 10-db pad to ANTENNA receptacle. (See figure 7-4.)

Note

Each time the following procedures are to be performed, gain of uhf receiver must be checked and calibrated with a pulse modulated r-f signal generator at 964 mcs and 1205 mcs.

d. Connect oscilloscope to uhf receiver video output, and synchronize it with a positive polarity from test point TP104.

e. Tune uhf receiver to 1205 mcs and peak its tuning.

f. Loosen locking nut on harmonic balance adjustment potentiometer R344, and adjust for maximum output indication. Observe, and note output amplitude on oscilloscope.

g. Tune uhf receiver to 964 mcs, and peak tuning.

h. Adjust R344 to bring output level closer to 1205 mcs level. Note this level.

i. Retune uhf receiver to 1205 mcs, and adjust R344 as necessary to obtain an equalized output. Continue adjustment of R344 until outputs are equalized to within 10% or closer in amplitude (no more than 1 db apart).

Note

The physical position of coupling loop L306 affects the variation of the 964 mcs output with setting of R344. If this loop has been disturbed, it may be necessary to slightly reset its location, tightness of coupling, etc., to obtain equalization.

j. Secure locking nut of R344. Replace tube V103.

7-18. SETTING THE R-F POWER OUTPUT LEVEL. Using same test equipment setup as described in paragraph 7-17, set r-f power output level as described below:

a. Tune uhf receiver to 1205 mcs.

b. Adjust POWER SET potentiometer R342 to obtain an output corresponding to a peak level of -30 dbm.

Note

The -30 dbm point on uhf receiver must be checked prior to this adjustment with pulse-modulated signal generator at both 964 mcs and 1205 mcs frequencies, each time readjustment is required.

c. Loosen locking nut and adjust meter sensitivity adjustment potentiometer R345 until POWER OUTPUT meter needle comes in line with "POWER SET" mark.

Note

The r-f output has considerable reserve margin, so that it will usually be possible to drive the meter off-scale by raising the setting of the "POWER SET" control knob.

d. Tuning uhf receiver to 964 mcs, check power output level for a peak of -30 ±2 dbm with POWER OUTPUT meter set to "POWER SET." Repeat this procedure at 1205 mcs. If it is not possible to obtain peak level setting of -30 ±2 dbm, recheck equalization of two output frequencies as outlined in paragraph 7-17.

e. Remove uhf receiver and 10 db pad, and replace tube V103. Secure all locking nuts.

7-19. ADJUSTMENT OF THE DECODER. To adjust decoder circuit, proceed as follows:

a. Connect uhf signal generator to antenna. Set generator frequency to 1027 mcs at a level of 3 dbm.

b. Loosen locking nut on receiver sensitivity adjustment potentiometer R312, and set it to its maximum clockwise position.

c. Connect oscilloscope probe to junction between R344 and coil L307, and observe detected pulse. Synchronize oscilloscope from pulse generator.

d. Set pair pulse spacing on paired pulse generator to 12 usec between leading edges, with a 4-usec pulse width. The detected pulse amplitude should be approximately 0.1 v peak. (Amplitude will depend on setting of R344.)

e. Move oscilloscope probe to test point TP206.

f. Adjust decoder adjustment L203 for maximum pulse amplitude on oscilloscope, while varying signal input as necessary to maintain a 6-v peak level. (Waveshape should be same as table 6-2, step 10.)

Note

The pulse should saturate at about 20 volts at higher signal levels.

7-20. ADJUSTMENT OF THE RECEIVER SENSITIVITY. Adjust receiver sensitivity, by performing following steps:

a. Connect uhf signal generator to antenna and set generator-frequency to 1027 mcs.

b. Connect oscilloscope probe to test point TP604 on video board A601. Gain access to TP604 from the semicircular cutout in the front of the potentiometer bracket. Synchronize the oscilloscope from the pulse generator. (See figure 7-6 for location of TP604.)

c. Place the test set RANGE switch to 0 MILES position and observe the delayed pulse. Waveshape should be similar to table 6-2, step 11a. The delayed pulse with the RANGE switch in the 190 MILES position should be similar to table 6-2, step 11b.

d. Adjust receiver sensitivity adjustment potentiometer R312 until the incoming pulse just barely triggers the test set. The receiver sensitivity should be 3 dbm.

e. Readjust setting in step d. with the generator frequency set at 1142 mc. The triggering pulse should occur at a level of 3 ±2 dbm, which is the receiver sensitivity. The delayed pulse should be approximately -8 v peak.

f. Tighten locking nut on R312.

7-21. ADJUSTMENT OF THE RANGE DELAY. The range delay should be adjusted, using the following steps:

a. With uhf signal generator connected to antenna as in previous paragraph, set frequency to 1027 mcs and raise level to 6 dbm.

b. Connect oscilloscope probe to junction between R344 and L307 for viewing received and transmitted reply pulses on same trace.

c. With RANGE switch on test set still set to "0 MILES" position keep r-f power output level constant by adjusting POWER SET control knob until POWER OUTPUT meter needle is aligned with POWER SET mark on meter.

d. Observe paired input pulses on oscilloscope at start of trace, and paired output pulses after a delay interval.

e. Refer to figure 7-1, adjust 0-mile range delay adjustment potentiometer R367 for 50 usec interval between start of second input pulse and start of second output pulse.

f. Secure locking nut on R367.

g. Place the test set RANGE switch to the 190 MILES position. Repeat steps d. thru f., adjusting the 190-mile range delay adjustment potentiometer R368 for 2398 usec delay interval.

h. Place the test set RANGE switch to the 290 MILES position, and adjust POWER SET control as in step c. Repeat steps d. thru f., adjusting the 290-mile range delay adjustment potentiometer R369 for 3634 usec delay interval.

j. Secure locknuts.

7-22. ADJUSTMENT OF PULSE SHAPING MULTIVIBRATOR (CHAN 1 A/A). The pulse shaping multivibrator sensitivity function control in the CHAN 1 A/A position should be adjusted, using the following steps:

a. Connect oscilloscope probe to TP306. (Located beside SENSITIVITY potentiometer R317, see figure 7-1).

b. Synchronize oscilloscope with external positive polarity from TP605 on video board A601. (Gain access thru circular cutout in potentiometer bracket, refer to figure 7-6.) Adjust oscilloscope sweep speed to view pulse pair.

c. Adjust sensitivity adjustment potentiometer R317 to obtain amplitude difference of 2 volts between second and third pulses as shown in table 6-2, step 14.

d. Secure locking nut on R317.

7-23. ADJUSTMENT OF AIR-TO-AIR INTERROGATION GENERATOR. Adjust Air-to-Air Interrogation Generator as follows:

a. Connect oscilloscope probe to TP605. (Refer to figure 7-6.)

b. Synchronize oscilloscope on internal positive polarity.

c. Refer to figure 7-1, air-to-air interrogation rate adjustment potentiometer R366 for a pulse spacing of 36,000 usec. Pulse amplitude should be approximately 6 volts. (See waveform in table 6-2, step 16.)

7-24. CHECK PULSE PAIR. A final check of the pulse pair should be made before continuing by the following steps:

a. Connect oscilloscope probe to TP302.

b. Synchronize oscilloscope on external positive polarity from TP605 and adjust sweep speed to view pulse pair.

c. Pulse width should be 6 ±1 usec, spacing should be 12 ±1 usec and the amplitude should be approximately 70 volts. Refer to waveform in table 6-2, step 13f.

7-25. ADJUSTMENT OF PULSE SHAPING MULTIVIBRATOR (CHAN 126 A/A). The pulse shaping multivibrator sensitivity function control in the CHAN 126 A/A position should be adjusted by performing steps contained in paragraphs 7-22, 7-23, and 7-24.

7-26. ADJUSTMENT OF R-F OUTPUT LEVEL. Adjust the r-f output level in CHAN 1 A/A position as given in steps a. through g. and in CHAN 126 A/A position as given in steps h. through j.

a. Set test set function switch to CHAN 1 A/A.

b. Connect the gain-calibrated uhf receiver through the 10-db pad to the ANTENNA receptacle.

Note

Each time the following procedures are to be performed, the gain of the uhf receiver must be checked and calibrated with a pulse modulated r-f signal generator at 1087 mc and 1088 mc.

c. Connect oscilloscope to uhf receiver video output, and synchronize it with a positive polarity from TP605. Adjust sweep speed to view pulse pair.

d. Tune uhf receiver to 1088 mc and peak its tuning.

e. Adjust coil L705 to give peak r-f pulse output.

f. Adjust POWER SET control to obtain an output corresponding to a peak level of -30 dbm.

Note

The -30 dbm point on the uhf receiver must be checked prior to this adjustment with the pulse modulated signal generator at both the 1087 mc and 1088 mc frequencies, each time readjustment is required.

g. Adjust meter sensitivity adjustment potentiometer R647 (on rear of video board A601) until POWER OUTPUT meter needle is aligned with POWER SET mark on meter.

h. Place test set function switch in CHAN 126 A/A position.

i. Tune the uhf receiver to 1087 mc and check the power output level for a peak of -30 ±2 dbm with POWER OUTPUT meter needle aligned with the POWER SET mark.

j. Remove uhf receiver and 10 db pad.

7-27. DECODER CALIBRATION. To verify that decoder calibration has not changed, proceed as follows:

a. Set test set function switch to CHAN 1 A/A.

b. Connect the uhf signal generator to the antenna, and set the generator frequency to 1151 mc at a level of 3 dbm.

c. Connect the probe of the oscilloscope to the junction between R344 and coil L307, and observe the detected pulse. Synchronize the oscilloscope from the pulse generator.

d. Set the pulse pair spacing on the signal generator to 12 usec between leading edges with a 4 usec pulse width.

e. The detected pulse amplitude should be approximately 0.1 volt-peak. (Amplitude will depend on setting of potentiometer R344.)

f. Place oscilloscope probe on TP604, place the test set RANGE switch to 0 MILES, and observe the delayed pulse. Waveshape should be similar to table 6-2, step 11a, and should occur at a level of 3 ±2 dbm. The delayed pulse should be approximately -8 v peak.

g. Perform steps c. thru f. with the test set function switch to CHAN 126 A/A and the signal generator frequency set to 1024 mc.

7-28. RANGE DELAY CHECK. Check range delay in air-to-air mode of operation as follows:

a. Set test set function switch to CHAN 1A/A.

b. Connect the uhf signal generator to the ANTENNA receptacle, and set the generator frequency to 1151 mc. Set the generator output level at 6 dbm.

c. Connect oscilloscope probe to E727 of the r-f generator assembly A701 to view the received and transmitted pulses on the same trace.

d. Set the RANGE switch to 0 MILES.

e. Check that the interval between the start of the second input pulse and the start of the reply pulse is 50 ±1 usec.

f. Set RANGE switch to 190 MILES and check that interval of step e. is 2410 ±25 usec.

g. Set RANGE switch to 290 MILES and

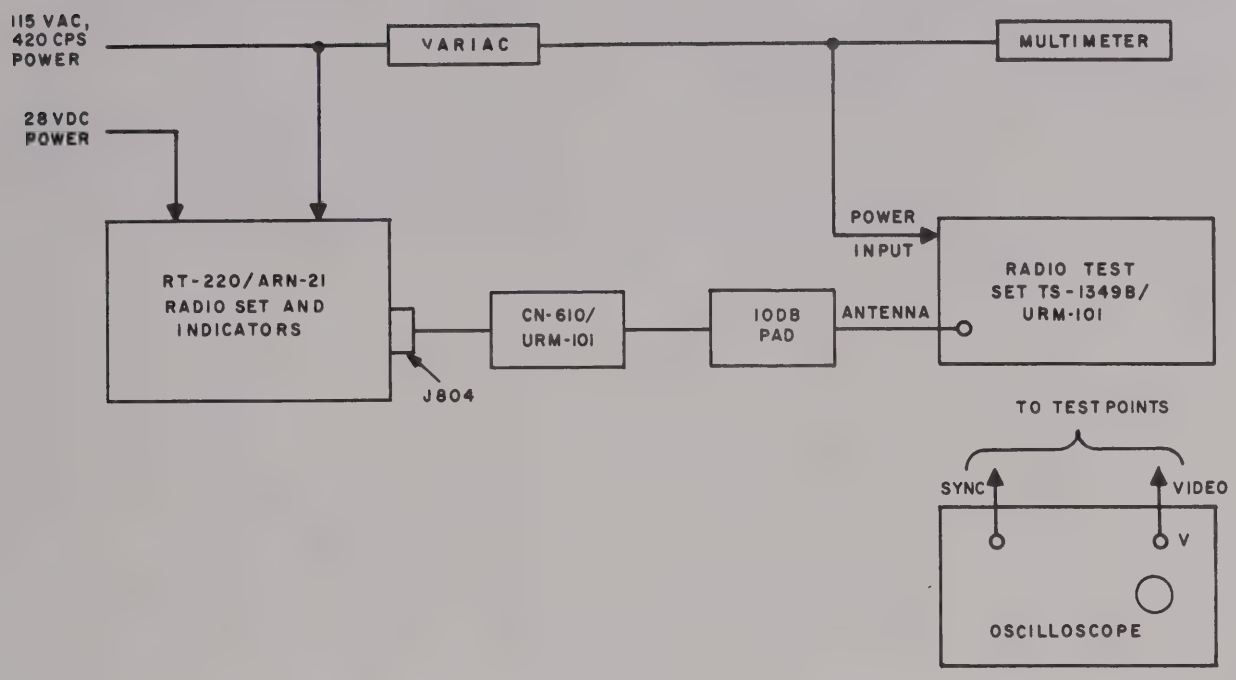


Figure 7-5. Range Reply Test Connections

check that interval of step e. is 3646 ±25 usec.

h. Perform steps b. thru g., with the test set function switch set to CHAN 126 A/A and signal generator frequency of 1024 mc.

7-29. ADJUSTMENT OF RANGE REPLY. Adjust range reply with equipment connected as shown in figure 7-5 by the following steps:

a. Connect the equipment as shown, figure 7-5.

b. Turn on power to all equipment and allow 20 minute warmup.

c. Set the RT-220/ARN-21 function selector switch for A/A operation and set the CHANNEL selector to 1.

d. Set test set function switch to CHAN 1 A/A.

e. Connect oscilloscope probe to E727. Synchronize the oscilloscope with external positive polarity from TP605. Adjust sweep speed to view the transmitted and received pulses.

f. Check that the interval between the start of the second transmitted pulse and the start of the reply pulse is 62 ±1 usec. (If not, the RT-220/ARN-21 must be recalibrated.)

g. Connect oscilloscope probe to TP602 on video board A601. Gain access thru cutout in potentiometer bracket.

h. Adjust range test adjustment potentiometer R370 until small pulse rides on top of, and is centered on the wide (approxi-

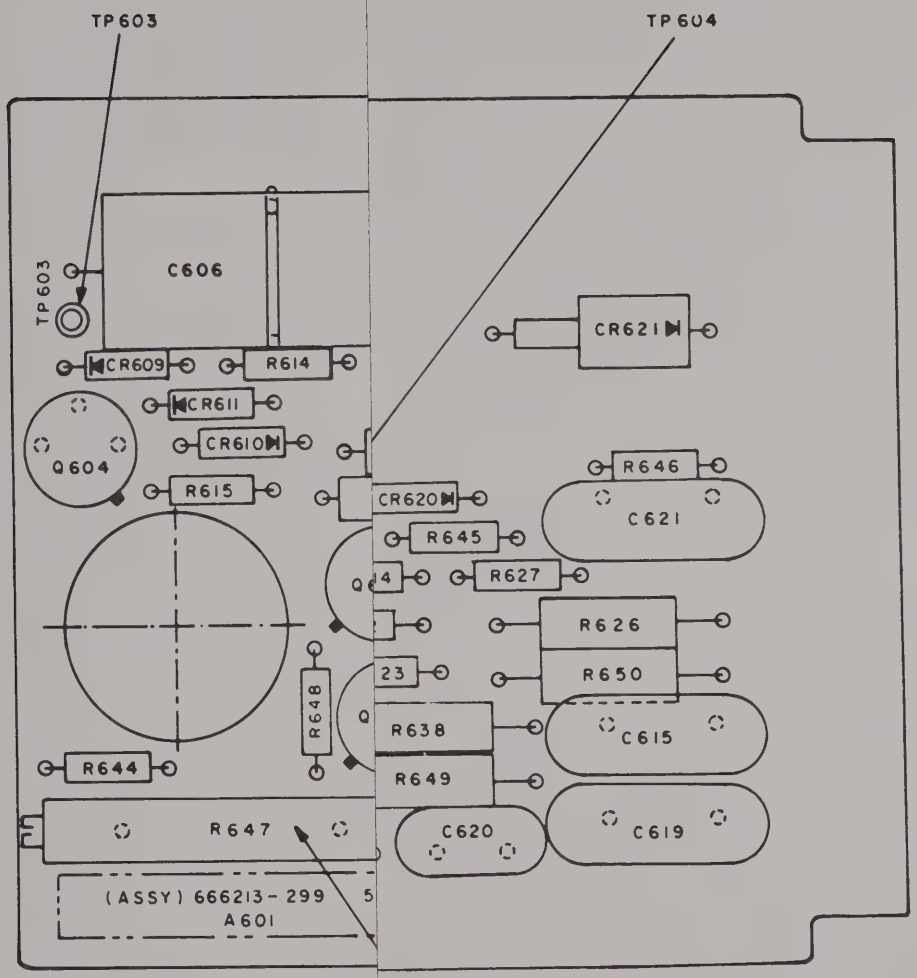
mately square) lower pulse. (See table 6-2, step 15.) Secure locknut.

i. Check that neon indicator lamp on front panel of test set flickers continuously.

Note

The lamp will skip flashes occasionally as the test set receiver is randomly blanked by the test set transmitter.

j. Turn off power and disconnect equipment. Place the TS-1349B/URM-101 in its carrying case and secure with the mounting screws. Return antenna, attenuator, and power cable to holders inside cover.



e 7-6. Video Board A601, Location of Test Points and Adjustments

mately square) lower pulse. (See table 6-2, step 15.) Secure locknut.

i. Check that neon indicator lamp on front panel of test set flickers continuously.

Note

The lamp will skip flashes occasionally as the test set receiver is randomly blanked by the test set transmitter.

j. Turn off power and disconnect equipment. Place the TS-1349B/URM-101 in its carrying case and secure with the mounting screws. Return antenna, attenuator, and power cable to holders inside cover.

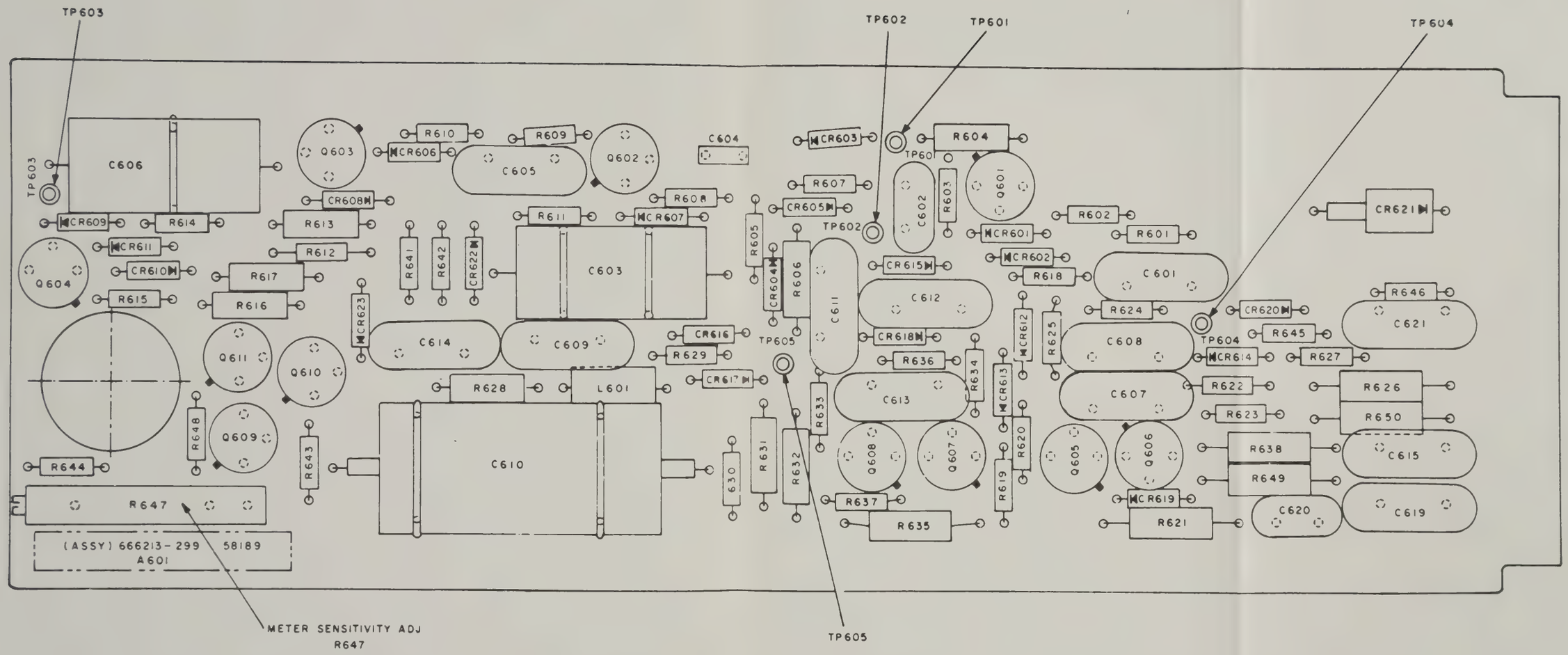


Figure 7-6. Video Board A601, Location of Test Points and Adjustments

SECTION VIII

DEPOT OVERHAUL STANDARDS

8-1. APPLICABILITY OF DEPOT OVERHAUL STANDARDS.

8-2. Radio Test Set AN/URM-101B must be tested thoroughly after rebuild or repair to insure that it meets adequate performance standards for return to stock and reissue. Use the tests referenced in paragraph 8-12 to measure the performance of the repair test set. It is mandatory that repaired equipment to be reissued, or returned to stock for reissue, meet all the performance standards given in these tests.

8-3. APPLICABLE REFERENCES.

8-4. REPAIR STANDARDS. Applicable procedures of the depot performing these tests and the general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing the AN/URM-101B.

8-5. TECHNICAL PUBLICATIONS. Technical Manual TM 11-6625-1634-15 is the only publication applicable to the AN/URM-101B.

8-6. MODIFICATION WORK ORDERS. Perform all modification work orders applicable to the test set before making the tests specified herein. DA Pam 310-7 lists all available MWO's.

8-7. TEST FACILITIES REQUIRED.

8-8. The test equipment specified in table 7-1 is required for depot testing:

8-9. GENERAL TEST REQUIREMENTS.

8-10. A source of 115 volts ac ±10%, 50 to 420 cps is required for depot testing.

8-11. TEST PROCEDURE.

8-12. Refer to the calibration checks in table 7-2 for the depot overhaul standards for the AN/URM-101B.

APPENDIX A

REFERENCES

Following is a list of references available to the operator and organizational repairman of Radio Test Set AN/URM-101B.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders.
SB 38-100	Preservation, Packaging and Packing Materials, Supplies, and Equipment Used by the Army.
TB 746-10	Field Instructions for Painting and Preservin g Electronics Command Equipment.
TB SIG 355-1	Depot Inspection Standard for Required Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment.
TM 9-213	Painting Instructions for Field Use.
TM 11-5826-235-20	Organizational Maintenance Manual: Tacan Navigational Set AN/ARN-52(V).
TM 11-6625-1648-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual: Test Set, Indicator AN/ARM-31.
TM 11-6625-1649-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual: Test Bench Harness AN/ARM-84.
TM 11-6625-1650-12	Operator and Organizational Maintenance Manual: Radio Test Set AN/ARM-22A.
TM 38-750	Army Equipment Record Procedures.

APPENDIX B

BASIC ISSUE ITEMS

Section I. INTRODUCTION

B-1. Scope

This appendix lists items which accompany the Test Set, Radio AN/URM-101B or are required for installation, operation, or operator's maintenance.

B-2. General

This basic issue items list is divided into the following sections:

a. Basic Issue Items—Section II. A list of items which accompany the AN/URM-101B and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies—Section III.
Not applicable.

B-3. Explanation of Columns

The following provides an explanation of columns in section II.

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1

(1) Source codes indicate the selection status and source for the listed item. Source codes are—

Code	*Explanation*
A	Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
X	Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.
X1	Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.
X2	Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned with accompanying justification, through normal supply channels.
P	Repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system and authorized for use at indicated maintenance categories.
P2	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
P9	Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.
P10	Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.
M	Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.

Code	Explanation
C	Repair parts authorized for local procurement. Where such repair parts are not obtainable from local procurement, requirements will be requisitioned through normal supply channels accompanied by a supporting statement of nonavailability from local procurement.
G	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance codes indicate the lowest category of maintenance authorized to install the listed item. The maintenance level codes are—

Code	Explanation
C	Operator/crew
O	Organizational Maintenance

(3) Recoverability codes indicate whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are—

Code	Explanation
R	Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S	Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	High dollar-value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.
U	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high-dollar value reusable casings or castings.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M) Column 4. A 2-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the AN/URM-101B. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. Quantity Furnished With Equipment, Column 6. This column indicates the quantity of an item furnished with the equipment.

g. Illustration, Column 7. This column is divided as follows: (For figures 1 through 10, see illustrations following appendix D.)

(1) *Figure number, column 7a.* This column indicates the figure number of the illustration in which the item is shown.

(2) *Item number, column 7b.* Not applicable.

B-4. Explanation of Columns in the Tabular List of Maintenance and Operating Supplies—Section III

Not applicable.

SECTION II BASIC ISSUE ITEMS AN/URM-101B

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS (a) FIG. NO.	(7) ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
G-O-S	6625-769-5343	TEST SET, RADIO AN/URM-101B: 374-1; (05828) (This item is nonexpendable)				1	
		TECHNICAL MANUAL TM 11-6625-1634-15 Requisition through pinpoint account number is assigned; otherwise through nearest Adjutant General facility. For technical manuals the quantity indicates the maximum number of copies authorized for packing (or issue) with the equipment. Where a number of these equipments are concentrated in a small area, the quantity on hand may be reduced to the minimum actual requirements as determined by the commanding officer of the unit.	ea	1	1		
P-O-S	6625-827-4171	ANTENNA AT-947/URM-101 C116A304833; (05828)	ea	1			
P-O--	5905-832-4111	ATTENUATOR, FIXED CN-610/URM-101 C116A304838; (05828)	ea	1			
P-O-R	6625-553-6295	CABLE ASSEMBLY, POWER CX-3135/U B116A304801; (05828)	ea	1			

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for AN/URM-101B.

It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc. This is accomplished with external test equipment and does not include operation of the equipment and operator type tests using internal meters or indicating devices.

c. Service. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Align. To adjust two or more components or assemblies of an electrical or mechanical system so that their functions are properly synchronized. This does not include setting the frequency control knob of radio receivers or transmitters to the desired frequency.

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. Install. To set up for use in an operational environment such as an encampment, site, or vehicle.

h. Replace. To replace unserviceable items with serviceable like items.

i. Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items items such as fuses, lamps, or electron tubes.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. Rebuild. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at

which that particular maintenance function is to be performed.

C-3. Explanation of Format

a. Column 1, Group Number. Not applicable.

b. Column 2, Functional Group. Column 2 lists the noun names of components, assemblies, subassemblies and modules on which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance category*
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

d. Column 4, Tools and Test Equipment. Column 4 specifies, by code, those tools and test equipment required to perform the designated function. The numbers appearing in this column refer to specific tools and test equipment which are identified in table I.

e. Column 5, Remarks. Self-explanatory.

C-4. Explanation of Format of Table I, Tool and Test Equipment Requirements

The columns in table I are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the *Tools and equipment* column of the maintenance allocation chart. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number of the specific tool or test equipment.

e. Tool Number. Not used.

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	RADIO TEST SET AN/URM-101B	O	O	O		H	H		O	H	D		1 thru 7 8 7 1 thru 7	Visual Inspection Operation Clean, touch-up painting Black Box Knobs, fuses, indicators All components

TABLE I. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
1	H, D	OSCILLOSCOPE AN/USM-281	6625-053-3112	
		Use AN/USM-140B until AN/USM-281 is available.		
2	H, D	UHF RECEIVER WITH TUNING HEAD AN/APR-9B		
3	O, H, D	VTVM AN/USM-223	6625-999-7465	
		Use AN/URM-105 at O and TS-352B/U at H and D until AN/USM-223 is available.		
4	H, D	PULSE GENERATOR AN/USM-27A	6625-682-7452	
5	H, D	VARIAC CN-16/U	5950-235-2086	
6	H, D	ATTENUATOR 10DB CN-797/U	5985-644-7996	
7	H, D	TOOL KIT TK-105/U	5180-610-8177	
8	O	TOOL KIT TK-101/U	5180-064-5178	

APPENDIX D

ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational, direct support, general support, and depot maintenance of the AN/URM-101B.

D-2. General

This repair parts and special tools list is divided into the following sections:

a. Prescribed Load Allowance (PLA)-Section II. A composite listing of repair parts, special tools, test and support equipment having quantitative allowances for initial stockage at the organizational level.

b. Repair Parts—Section III. A list of repair parts authorized for the performance of maintenance at the organizational level.

c. Special Tools, Test and Support Equipment —Section IV. Not applicable.

d. Repair Parts—Section V. A list of repair parts authorized for the performance of maintenance at the direct support, general support, and depot level.

e. Special Tools, Test and Support Equipment —Section VI. Not applicable.

NOTE

All indexes noted below are cross-referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list. The index number for the particular item will be the same for the item in all sections of this appendix.

f. Federal Stock Number Cross-Reference to Index Number—Section VII. A list of Federal stock numbers in ascending numerical sequence cross-referenced to index (sequence) numbers.

g. Figure and Item Number Cross-Reference to Index Numbers—Section VIII. A list of illustration figure numbers in numerical sequence, cross-referenced to item number (reference designation) and index numbers.

h. Reference Designation Cross-Reference to Index Number—Section IX. A list of reference designations (or item numbers) to index numbers.

D-3. Explanation of Columns

a. The following provides an explanation of columns in the tabular lists:

(1) Source codes indicate the source from which the item is obtained. Source codes are—

Code	*Explanation*
P	Repair parts which are stocked in or supplied from the GSA/DSA, or Army Supply system and authorized for use at indicated maintenance categories.
P2	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
P9	Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.
P10	Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.

M Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.

A Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.

X Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.

X1 Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.

X2 Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.

G Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2)Maintenance codes indicate the lowest category of maintenance authorized to install the listed item. The maintenance level codes are—

Code	*Maintenance category*
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

(3) Recoverability codes indicate whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are—

Code	*Explanation*
R	Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S	Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	High-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.
U	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high-dollar value reusable casings or castings.

b. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M) (or Unit of Issue). A 2-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit. Indicates the quantity of the item used in AN/URM-101B. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. 15-Day Organizational Maintenance Allowances.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the allowance columns. Items authorized for use as required but not for initial stockage are

identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 of these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. *Example,* authorized allowance for 51-100 equipments is 12; for 140 equipments multiply 12 by 1.40 or 16.80 rounded off to 17 parts required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AN, Fort Monmouth, N. J. 07703 for exception or revision to the allowance list. Revisions to the range of items authorized will be made by USAECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

g. 30-Day DS/GS Maintenance Allowances.

NOTE

Allowances in GS column are for GS maintenance only.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. *Example,* authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

h. One-Year Allowances per 100 Equipments/ Contingency Planning Purposes. Indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for 1 year.

i. Depot Maintenance Allowance per 100 Equipments. Indicates opposite the first appearance of each item the total quantity authorized for depot maintenance of 100 equipments. Subsequent appearances of the same item will have the letters "REF" in the allowance column. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

j. Illustration.

(1) *Figure number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number.* Indicates the callout number (or reference designation) used to reference the item in the illustration.

D-4. Special Information

a. Repair parts mortality is computed from failure rates derived from experience factors with the individual parts in a variety of equipments. Variations in the specific application and periods of use of electronics equipment, the fragility of electronic piece parts, plus intangible material and quality factors intrinsic to the manufacture of electronic parts, do not permit mortality to be based on hours of end item use. However, long periods of continuous use under adverse conditions are likely to increase repair parts mortality.

b. Parts which require manufacture or assembly at a category higher than that authorized for

installation will indicate in the source column the higher category (i.e., MD).

D-5. Location of Repair Parts

a. This appendix contains three cross-reference indexes (secs. VII, VIII, and IX), to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), figure number, or reference designation is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alphanumerical sequence. The last column of each cross-reference index lists the index number assigned to the part.

b. Refer to the appropriate cross-reference index (para D-2*f*, *g*, and *h*) and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

D-6. Federal Supply Code for Manufacturer

Code	*Manufacturer's name*
05828	General Instrument Corp. Radio Receptor Div.
06413	Tri-Point Industries, Inc.
07387	Birtcher Corp., The
56878	Standard Pressed Steel Co.
71279	Cambridge Thermionic Corp.
71785	Cinch Mfg. Co. and Howard B. Jones Div.
72962	Elastic Stop Nut Corp. of America
78189	Illinois Tool Works, Inc., Shakeproof Div.
79963	Zierick Mfg. Corp.
80064	Naval Ship Systems Command
81349	Military Specifications
85942	Elliott, J. H. Co.
94222	Southco, Inc.
94375	Automatic Metal Products Corp.
96906	Military Standards
98278	Microdot, Inc.

SECTION II PRESCRIBED LOAD ALLOWANCE AN/URM-101B

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
		(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
5920-474-5743	FUSE, CARTRIDGE: F02G3R00A; (96906)	*	*	2	2
6240-155-8706	LAMP, INCANDESCENT: MS15571-2; (96906)	*	2	2	3

SECTION III REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE AN/URM-101B

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / Reference Number & Mfr Code / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
G-O-S A001	6625-769-5343	TEST SET, RADIO AN/URM-101B: 374-1; (05828) (This item is nonexpendable)							1	
P-O-S A002	6625-827-4171	ANTENNA AT.947/URM-101: C116A304833; (05828)	ea	1	*	*	*	*	1	1
P-O-- A009	5905-832-4111	ATTENUATOR, FIXED CN-610/URM-101: C116A304838; (05828)	ea	1	*	*	*	*	1	3
P-O-R A010	6625-553-6295	CABLE ASSEMBLY, POWER CX-3135U: B116A304801; (05828)	ea	1	*	*	*	*	1	2
AH-O-S A016		CASE, TEST SET: D99-305235; (05828)	ea	1					2-1	
AH-O-S A017		CASE ASSEMBLY, TEST SET: D116A304808; (05828)	ea	1						
AH-O-S A039		TEST SET, RADIO TS-1349/URM-101: D116A304821; (05828)	ea	1					1-6	
P-O-- A336	5920-474-5743	FUSE, CARTRIDGE: FO2G3R00A; (96906)	ea	2	*	*	2	2	3	13
P-O-- A337	6240-155-8706	LAMP, INCANDESCENT: MS15571-2; (96906)	ea	1	*	2	2	3	3	6
P-O-- A346		KNOB: B35-301899; (05828)	ea	1	*	*	*	*		MP1
P-O-- A347	6210-186-7987	LAMPHOLDER: MS90287-4; (96906)	ea	1	*	*	*	*		

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE | AN/URM-101B

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
G-O-S A001	6625-523-4291	TEST SET, RADIO AN/URM-101B: 374-1; (05828) (This item is nonexpendable)												1	
P-O-S A002	6625-827-4171	ANTENNA AT.947/URM-101: C116A304833; (05828)	ea		1				*	*	*	5	5	1	1
P-H-- A003		CONNECTOR, PLUG, ELECTRICAL: B79-304828-2; (05828)	ea		1				*	*	2	8	14	1	1
P-H-- A004		CONNECTOR, RECEPTACLE, ELEC: B79-304827-2; (05828)	ea		1				*	*	2	8	14	1	1
X2-H-- A005	5305-584-8690	SCREW, MACHINE: MS35271-14; (96906)	ea		4										H1 thru H4
X2-H-- A006	5305-543-2410	WASHER, LOCK: MS35338-40; (96906)	ea		4										H5 thru H8
P-H-- A007	5935-252-6340	COVER, ELECTRICAL, CONNECTOR: CW123AU; (81349)	ea		1				*	*	2	8	4		E501
X2-H-- A008		PLATE, IDENTIFICATION: B52-304959; (05828)	ea		1									1-5	
P-O-- A009	5905-832-4111	ATTENUATOR, FIXED CN-610/URM-101: C116A304838; (05828)	ea		1				*	*	*	5	10	1	3
P-O-R A010	6625-553-6295	CABLE ASSEMBLY, POWER CX-3135U: B116A304801; (05828)	ea		1				*	*	*	5	15	1	2
X2-H-- A011		BAND, MARKER, CABLE: B52-304800; (05828)	ea		1									1-2	
P-H-- A012	5935-223-0577	CLAMP, CABLE, ELECTRICAL CONN: AN3057-4; (81349)	ea		1				*	*	2	8	9	1	2
P-H-- A013	5935-404-8015	CONNECTOR, PLUG, ELECTRICAL: MS3106A10SL3S; (96906)	ea		1				*	*	2	8	14	1	2
P-H-- A014	5935-636-7145	CONNECTOR, PLUG, ELECTRICAL: UP121M; (81349)	ea		1				*	*	2	8	14	1	2
P-H-- A015	5940-187-5106	TERMINAL, LUG: 83; (79963)	ea		1				*	*	2	8	15		MP2
AH-O-S A016		CASE, TEST SET: D99-305235; (05828)	ea		1									2-1	
AH-O-S A017		CASE ASSEMBLY, TEST SET: D116A304808; (05828)	ea		1										
P-H-- A018		BLOCK, MOUNTING: B99-305233; (05828)	ea		1				*	*	*	5	15		MP3
X1-D-- A019		RIVET, SOLID: MS20470AD6-14; (96906)	ea		2										MP1, MP2
X2-H-- A020		NUT, SELF-LOCKING, CLINCH: 22FP3-8-32; (56878)	ea		12										H1 thru H12
X2-H-- A021		COVER, TEST SET: D116A304810; (05828)	ea		1										
X2-H-- A022		CATCH, FRICTION: B12-304848; (05828)	ea		6										MP1 thru MP6
X1-D-- A023		RIVET, SOLID: MS20470AD4-5; (96906)	ea		12										MP7 thru MP18
M-D-- A024		PAD, RUBBER: B15-304842; (05828)	ea		6										MP19 thru MP24
M-D-- A025		PAD, RUBBER: B99-305232-1; (05828)	ea		2										MP25, MP26
X2-H-- A026	5305-722-2666	SCREW, EXTERNALLY RELIEVED BODY: 58-16-309-56; (94222)	ea		3										H1, H2, H3
P-H-- A027	5325-709-3951	STANDOFF: 58-33-1-56; (94222)	ea		3				*	2	2	18	18		MP27, MP28, MP29
P-H-- A028	5330-821-7503	WASHER, NON-METALLIC: 58-42-0-63; (94222)	ea		3										MP30, MP31, MP32

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CMTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
M-D-- A029		GASKET: C15-304882; (05828)	ea		1										MP1
P-H-- A030		HANDLE ASSEMBLY: B116A304947; (05828)	ea		1				*	*	*	5	9		
P-H-- A031	5315-531-7880	PIN, SPRING: MS171436; (96906)	ea		2				*	*	2	10	6		MP1, MP2
P-H-- A032		GRIP, HANDLE: B21-304938; (05828)	ea		1				*	*	*	5	9		MP3
P-H-- A033		HANDLE: B16-304907; (05828)	ea		1				*	*	*	5	9		MP4
X2-H-- A034		PLATE, IDENTIFICATION: B52-304958; (05828)	ea		1										MP2
X2-H-- A035		PLATE, IDENTIFICATION: B52-304957; (05828)	ea		1										MP3
P-H-- A036		RETAINER, HANDLE: B12-304932-1; (05828)	ea		1				*	*	*	5	9		MP4
X2-H-- A037		SCREW, MACHINE: MS35222-62; (96906)	ea		2										H1, H2
X2-H-- A038	5310-045-3296	WASHER, LOCK: MS35338-43; (96906)	ea		2										H3, H4
AH-O-S A039		TEST SET, RADIO TS-1349/URM-101: D116A304821; (05828)	ea		1									1-6	
P-H-- A040		BRACKET, DOUBLE ANGLE: B12-304895; (05828)	ea		1				*	*	*	5	4		MP1
X2-H-- A041	5305-550-9328	SCREW, MACHINE: MS35229-15; (96906)	ea		2										H1, H2
X2-H-- A042	5310-209-5311	WASHER, LOCK: MS35338-21; (96906)	ea		2										H3, H4
P-H-- A043		BRACKET, MOUNTING, RESISTOR: B15-304954; (05828)	ea		1				*	*	*	5	4		
X2-H-- A044	5305-550-9328	SCREW, MACHINE: SAME AS A041	ea		4										H5 thru H8
P-H-- A045		BRACKET: B12-304928; (05828)	ea		1				*	*	*	5	4		MP2
P-H-- A046		CABLE ASSEMBLY: B99-305229; (05828)	ea		1				*	*	*	5	15	4	2
P-H-- A047	5935-873-9076	CONNECTOR END SEAL: MX1684U; (80064)	ea		1				*	2	2	13	28	4	2
P-H-- A048	5935-754-7689	CONNECTOR, PLUG, ELECTRICAL: 0200-0910C; (94375)	ea		1				*	2	2	13	28	4	2
P-H-- A049		CABLE ASSEMBLY: B99-305230; (05828)	ea		1				*	*	*	5	15		W302
P-H-- A050	5935-873-9076	CONNECTOR END SEAL: SAME AS A047	ea		1										E302
P-H-- A051		CONNECTOR, PLUG, ELECTRICAL: 0200-0910B; (94375)	ea		1				*	2	2	13	28		P302
A-H-S A052		CHASSIS ASSEMBLY: D116A304869; (05828)	ea		1										
P-H-- A053		BRACKET, ANGLE: B12-304949; (05828)	ea		2				*	*	2	10	8		MP1, MP2
X2-H-- A054	5305-550-9346	SCREW, MACHINE: MS35229-28; (96906)	ea		2										H1, H2
X2-H-- A055		NUT, SELF-LOCKING, HEXAGON: F29NM62; (72962)	ea		2										H3, H4
P-H-- A056		CAPACITOR, FIXED, ELECTROLYTIC: CE32C700N; (81349)	ea		1				*	*	2	5	8	4	45
P-H-- A057	5910-840-9870	CAPACITOR, FIXED, ELECTROLYTIC: CE33C400N; (81349)	ea		1				*	*	2	5	8	4	46

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A058		CAPACITOR, FIXED, CERAMIC DIEL: CC22CH070D; (81349)	ea		1				*	*	2	5	6	4	70
P-H-- A059	5910-667-1190	CAPACITOR, FIXED, PAPER DIEL: CP05A1EE104M; (81349)	ea		1				*	2	2	18	27	4	55
P-H-- A060	5910-280-7401	CAPACITOR, FIXED CERAMIC DIEL: CK63Y103Z; (81349)	ea		1				*	2	2	19	24	4	78
P-H-- A061	5910-100-8150	CAPACITOR, FIXED, MICA DIEL: CM35B103M; (81349)	ea		1				2	2	3	33	36	4	76
P-H-- A062	5910-174-9968	CAPACITOR, FIXED, MICA DIEL: CM15B221K; (81349)	ea		1				*	*	2	8	6	4	71
P-H-- A063	5910-666-8083	CAPACITOR, FIXED, CERAMIC DIEL: CK60Y821Z; (81349)	ea		3				*	2	2	18	18	4	63
P-H-- A064		CAPACITOR, FIXED, CERAMIC DIEL: CC22CH050D; (81349)	ea		2				*	2	2	13	12	4	65
P-H-- A065	5910-163-0091	CAPACITOR, FIXED, CERAMIC DIEL: CC30SL101K; (81349)	ea		3				*	2	2	18	18	4	57
P-H-- A066		CAPACITOR, FIXED, CERAMIC DIEL: CK30SL101K; (81349)	ea		2				*	2	2	13	12	4	57
P-H-- A067		CAPACITOR, FIXED, CERAMIC DIEL: CC22CH100F; (81349)	ea		1				*	*	2	8	6	4	60
P-H-- A068	5910-543-0506	CAPACITOR, FIXED, CERAMIC DIEL: CC22CK1R5C; (81349)	ea		2				*	2	2	13	12	4	72
P-H-- A069		CAPACITOR, FIXED, ELECTROLYTIC: CE61C250F; (81349)	ea		1				*	*	2	8	8	4	54
P-H-S A070		CHASSIS: D15-304818; (05828)	ea		1				*	*	*	5	5		MP3
P-H-- A071	5340-078-4226	CLAMP, LOOP: NAS1397-6B; (80205)	ea		2				*	*	2	10	18		MP4, MP5
X2-H-- A072	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		2										H5, H6
X2-H-- A073	5310-045-0591	WASHER, LOCK: MS35338-22; (96906)	ea		2										H7, H8
X2-H-- A074	5310-656-0026	WASHER, FLAT: MS15795-605; (96906)	ea		2										H9, H10
X2-H-- A075	5310-803-1833	NUT, PLAIN, HEXAGON: MS35649-65; (96906)	ea		2										H11, H12
P-H-- A076		COIL, RADIO FREQUENCY: B3007-2-18; (05828)	ea		1				*	*	*	5	6	4	68
P-H-- A077		COIL, RADIO FREQUENCY: B99-305228; (05828)	ea		1				*	*	*	5	6	4	31
P-H-- A078		COIL, RADIO FREQUENCY: B3007-2-3; (05828)	ea		2				*	*	2	10	12	4	59
P-H-- A079		COIL, RADIO FREQUENCY: B3007-2-5; (05828)	ea		1				*	*	*	5	6	4	83
P-H-- A080		COIL, RADIO FREQUENCY: B3007-2-8; (05828)	ea		1				*	*	*	5	6	4	69
P-H-- A081		COIL, VARIABLE: B112-304933-1; (05828)	ea		1				*	*	*	5	6	4	27
P-H-- A082		COIL, VARIABLE: B112-304933-2; (05828)	ea		1				*	*	*	5	6	4	28
P-H-- A083		COIL, VARIABLE: B112-304933-3; (05828)	ea		1				*	*	*	5	6	4	29
P-H-- A084		COIL, VARIABLE: B112-304933-4; (05828)	ea		1				*	*	*	5	6	4	30
P-H-- A085	5935-621-6888	CONNECTOR, RECEPTACLE, ELEC: B79-304886-1; (05828)	ea		2				*	2	2	13	28	4	24
X2-H-- A086	5305-550-9326	SCREW, MACHINE: MS35229-17; (96906)	ea		4										H13 thru H16

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A087		CRYSTAL UNIT QUARTZ: B63-304095; (05828)	ea		1				*	*	2	10	4	4	21
P-H-- A088		DELAY LINE: C83-303149; (05828)	ea		1				*	*	*	5	5	4	52
P-H-- A089	5960-188-6584	ELECTRON TUBE: 5670; (81349)	ea		4				2	3	6	71	1000	4	7
P-H-- A090	5960-262-1357	ELECTRON TUBE: 5654-6AK5W; (81349)	ea		3				2	2	3	33	300	4	18
P-H-- A091	5960-624-4718	ELECTRON TUBE: OB2WA; (81349)	ea		1				*	2	2	15	100		V308
X2-H-- A092		GROMMET, RUBBER: B21-304920-2; (05828)	ea		2										MP6, MP7
X2-H-- A093		GROMMET, RUBBER: B21-304920-1; (05828)	ea		1										MP8, MP9
P-H-- A094		INSERT, ELECTRON TUBE SHIELD: B3400-02-4; (05828)	ea		4				*	2	2	16	40	4	6
P-H-- A095		INSERT, ELECTRON TUBE SHIELD: B3400-02-1; (05828)	ea		3				*	2	2	13	30	4	17
P-H-- A096		INSERT, ELECTRON TUBE SHIELD: B3400-02-3; (05828)	ea		1				*	*	*	5	10		E318
P-H-- A097		LUG, POLARIZING: A3731-7; (05828)	ea		1				*	*	2	8	15		MP10
P-H-- A098		OSCILLATOR, TANK CIRCUIT: C83-303150; (05828)	ea		1				*	*	*	5	5	4	9
X2-H-- A099	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		2										H16, H17
X2-H-- A100	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		2										H18, H19
M-D-- A101		PAD, RUBBER: A99-305238; (05828)	ea		2										MP11, MP12
P-H-- A102	5950-827-6432	REACTOR: C112-303147; (05828)	ea		1				*	*	2	8	3	4	48
X2-H-- A103	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		4										H20 thru H23
X2-H-- A104	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		4										H24 thru H27
P-H-- A105	5905-539-5886	RESISTOR, FIXED WIREWOUND: RW30G162; (81349)	ea		1				*	*	2	8	12	4	53
X2-H-- A106		SCREW, MACHINE: 6-32PNHBRASSSCR; (COML)	ea		1										H28
X2-H-- A107	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		1										H29
X2-H-- A108	5310-198-9348	WASHER, FLAT: MS15795-207; (96906)	ea		2										H30, H31
X2-H-- A109	5970-814-0393	WASHER, NONMETALLIC: MS75009-2; (96906)	ea		2										MP13, MP14
X2-H-- A110	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		1										H32
P-H-- A111	5905-195-6817	RESISTOR, FIXED, COMPOSITION: RC20GF102K; (96906)	ea		2				*	2	2	19	28	4	67
P-H-- A112	5905-171-1998	RESISTOR, FIXED, COMPOSITION: RC20GF333J; (81349)	ea		1				*	2	2	18	21	4	82
P-H-- A113	5905-185-6946	RESISTOR, FIXED, COMPOSITION: RC20GF474K; (81349)	ea		1				*	2	2	27	35	4	81
P-H-- A114	5905-186-3008	RESISTOR, FIXED, COMPOSITION: RC20GF101K; (81349)	ea		1				*	*	2	8	7	4	61
P-H-- A115	5905-192-3982	RESISTOR, FIXED, COMPOSITION: RC20GF105K; (81349)	ea		1				2	2	3	33	42	4	79

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A116	5905-256-0409	RESISTOR, FIXED, COMPOSITION: RC20GF221K; (81349)	ea		1				*	*	2	8	7	4	80
P-H-- A117	5905-171-2009	RESISTOR, FIXED, COMPOSITION: RC20GF222K; (81349)	ea		1				*	*	2	8	7		
P-H-- A118	5905-192-3988	RESISTOR, FIXED, COMPOSITION: RC20GF563K; (81349)	ea		3				*	2	2	13	14	4	77
P-H-- A119	5905-239-0583	RESISTOR, FIXED, COMPOSITION: RC20GF125K; (81349)	ea		1				*	2	2	18	21	21	75
P-H-- A120	5905-171-2002	RESISTOR, FIXED, COMPOSITION: RC20GF470K; (81349)	ea		2				*	2	2	13	14	4	74
P-H-- A121	5905-195-6800	RESISTOR, FIXED, COMPOSITION: RC20GF561J; (81349)	ea		1				*	*	2	8	7	4	73
P-H-- A122	5905-185-8518	RESISTOR, FIXED, COMPOSITION: RC20GF103K; (81349)	ea		2				*	2	2	27	35	4	64
P-H-- A123	5905-192-3981	RESISTOR, FIXED, COMPOSITION: RC20GF124J; (81349)	ea		1				*	*	2	8	7	4	66
P-H-- A124	5905-171-2005	RESISTOR, FIXED, COMPOSITION: RC20GF471K; (81349)	ea		4				2	2	3	33	42	4	62
P-H-- A125	5905-542-7825	RESISTOR, FIXED, WIREWOUND: RW57G501; (81349)	ea		1				*	*	2	8	12	4	56
P-H-- A126	5905-195-6814	RESISTOR, FIXED, COMPOSITION: RC42GF102K; (81349)	ea		1				*	*	2	8	7		R354
P-H-- A127	5905-660-3803	RESISTOR, VARIABLE, COMPOSITION: RV5LAXSB102B; (81349)	ea		1				*	*	2	8	8	4	26
P-H-- A128	5905-688-4980	RESISTOR, VARIABLE, COMPOSITION: RV5LAXSB503B; (81349)	ea		1				*	*	2	8	8	4	25
P-H-- A129	5905-984-0296	RESISTOR, VARIABLE, COMPOSITION: RV5LAXSB253B; (81349)	ea		2				*	2	2	13	16	4	50
P-H-- A130		RETAINER, CAPACITOR: C3736-01-1; (05828)	ea		2				*	2	2	13	10		MP15, MP16
X2-H-- A131	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		8										H33 thru H40
X2-H-- A132	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		8										H41 thru H48
X2-H-- A133	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		8										H49 thru H56
P-H-- A134	5960-856-2461	RETAINER, CRYSTAL HOLDER: B24-304939; (05828)	ea		1				*	*	2	8	5		MP17
X2-H-- A135	5305-550-9326	SCREW, MACHINE: SAME AS A086	ea		1										H57
X2-H-- A136	5310-616-3092	NUT, PLAIN, HEXAGON: MS35649-45; (96906)	ea		1										H58
P-H-- A137		SEMICONDUCTOR DEVICE ASSY, DIO: B116A304910; (05828)	ea		1				*	*	*	5	7		
X2-H-- A138	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		2										H59, H60
X2-H-- A139	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		2										H61, H62
X2-H-- A140	5310-687-6107	NUT, PLAIN HEXAGON: 6-32BRASSNUT; (85942)	ea		1										H63
P-H-- A141	5961-572-4526	SEMICONDUCTOR DEVICE, DIODE: 1N540; (81349)	ea		4				*	2	2	19	28	4	87
P-H-- A142	5961-572-4526	SEMICONDUCTOR DEVICE, DIODE: SAME AS A141	ea		ref									4-87	
P-H-- A143		TERMINAL BOARD: B116A304909; (05828)	ea		1				*	*	*	5	9		
P-H-- A144		TERMINAL, STUD: A79-303566; (05828)	ea		3				*	2	2	18	30		MP1, MP2, MP3

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A145	5961-912-4907	SEMICONDUCTOR, DEVICE, DIODE: 1N82AG; (81349)	ea		1				*	*	2	8	7	4	84
P-H-- A146	5960-262-0345	SHIELD, ELECTRON TUBE: TS103U01; (81349)	ea		4				*	2	2	27	40	4	5
P-H-- A147	5960-262-0015	SHIELD, ELECTRON TUBE: TS102U01; (81349)	ea		3				*	2	2	18	30	4	16
P-H-- A148	5960-729-8150	SHIELD, ELECTRON TUBE: TS102U03; (81349)	ea		1				*	*	2	8	10		E310
P-H-- A149		SOCKET, CRYSTAL: TS205C01; (81349)	ea		1				*	*	2	8	7	4	23
P-H-- A150	5935-160-1365	SOCKET, ELECTRON TUBE: TS103P01; (81349)	ea		4				*	2	2	27	28	4	8
X2-H-- A151	5305-550-9330	SCREW, MACHINE: MS35229-13; (96906)	ea		8										H64 thru H71
X2-H-- A152	5310-209-5311	WASHER, LOCK: SAME AS A042	ea		8										H72 thru H29
X2-H-- A153	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		8										H80 thru H87
P-H-- A154	5935-260-0516	SOCKET, ELECTRON TUBE: TS102P01; (81349)	ea		4				*	2	2	27	28	4	19
X2-H-- A155	5305-550-9330	SCREW, MACHINE: SAME AS A151	ea		8										H88 thru H95
X2-H-- A156	5310-209-5311	WASHER, LOCK: SAME AS A042	ea		8										H103 thru H110
X2-H-- A157	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		8										H111 thru H118
A-H-R A158		TERMINAL BOARD ASSEMBLY: B116A304868; (05828)	ea		1										MP18
X2-H-- A159	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		6										H111 thru H116
X2-H-- A160	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		6										H117 thru H122
X2-H-- A161	5310-656-0026	WASHER, FLAT: SAME AS A074	ea		6										H123 thru H128
P-H-- A162	5910-027-5866	CAPACITOR, FIXED, MICA DIEL: CM20B102M; (81349)	ea		2				*	2	2	27	24	7	5
P-H-- A163	5910-100-8150	CAPACITOR, FIXED, MICA DIEL: SAME AS A061	ea		2									7-6	
P-H-- A164		CAPACITOR, FIXED, MICA DIEL: CM15B470K; (81349)	ea		1				*	2	2	13	12	7	3
P-H-- A165		CAPACITOR, FIXED, MICA DIEL: CM20B471M; (81349)	ea		1				*	2	2	27	30	7	11
P-H-- A166	5910-666-8819	CAPACITOR, FIXED, MICA DIEL: CM15B680K; (81349)	ea		1				*	2	2	13	12		C310
P-H-- A167	5905-185-6946	RESISTOR, FIXED, COMPOSITION: SAME AS A113	ea		3									7-1	
P-H-- A168	5905-171-1998	RESISTOR, FIXED, COMPOSITION: SAME AS A112	ea		2									7-7	
P-H-- A169	5905-295-3410	RESISTOR, FIXED, COMPOSITION: RC20GF473K; (81349)	ea		2				*	2	2	19	28	7	10
P-H-- A170	5905-190-8882	RESISTOR, FIXED, COMPOSITION: RC20GF393K; (81349)	ea		1				2	2	3	33	42	7	12
P-H-- A171	5905-192-3987	RESISTOR, FIXED, COMPOSITION: RC20GF104K; (81349)	ea		2				*	2	2	19	28		R316, R323
P-H-- A172	5905-221-5840	RESISTOR, FIXED, COMPOSITION: RC20GF564K; (81349)	ea		2				*	2	2	27	35	7	14
P-H-- A173	5905-195-6817	RESISTOR, FIXED, COMPOSITION: SAME AS A111	ea		1									7-8	

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H--A174	5905-279-1716	RESISTOR, FIXED, COMPOSITION: RC32GF333K; (81349)	ea		1				*	*	2	8	7	7	4
P-H--A175	5905-190-8876	RESISTOR, FIXED, COMPOSITION: RC20GF153K; (81349)	ea		1				*	*	2	8	7	7	2
P-H--A176	5905-171-1976	RESISTOR, FIXED, COMPOSITION: RC42GF153J; (81349)	ea		1				*	*	2	8	7	7	17
P-H--A177	5905-284-3535	RESISTOR, FIXED, COMPOSITION: RC20GF475K; (81349)	ea		1				*	*	2	8	7	7	13
P-H--A178	5961-577-6214	SEMICONDUCTOR DEVICE, DIODE: 1N538; (81349)	ea		1				*	*	2	8	7	7	9
P-H--A179	5961-543-0490	SEMICONDUCTOR DEVICE: 1N459; (81349)	ea		1				*	2	2	27	28	7	15
P-H--A180		TERMINAL BOARD: B116A304687; (05828)	ea		1				*	*	*	5	9		
P-H--A181	5940-622-1934	TERMINAL, STUD: X2034B; (71279)	ea		48				2	2	3	40	96		MP1 thru MP48
P-H--A182	5940-892-7446	TERMINAL, FEEDTHRU, INSULATED: F254R; (06413)	ea		5				*	2	2	27	50		TP301 thru TP305
P-H--A183	5940-204-7897	TERMINAL, LUG: 322; (79963)	ea		1				*	*	2	8	15		MP19
P-H--A184	5940-847-3138	TERMINAL, LUG: 2104-04-00; (78189)	ea		6				2	2	3	33	70		MP20 thru MP25
P-H--A185	5940-156-7344	TERMINAL, LUG: 2104-06-00; (78189)	ea		4				*	2	2	19	40		MP26 thru MP29
P-H--A186	5940-159-1293	TERMINAL, LUG: 2104-08-00; (78189)	ea		1				*	2	2	19	40		MP30
P-H--A187	5940-250-7764	TERMINAL, LUG: 4422; (71785)	ea		1				*	*	2	8	10		MP31
P-H--A188	5940-900-4575	TERMINAL, STUD: 6057B; (98278)	ea		1				*	*	2	8	2		MP32
P-H--A189		TRANSFORMER, POWER, STEPDOWN: C75-303148; (05828)	ea		1				*	*	*	5	7	4	47
X2-H--A190	5310-209-5309	WASHER, LOCK: MS35338-23; (96906)	ea		4										H129 thru H132
X2-H--A191	5310-616-6949	NUT, PLAIN, HEXAGON: MS35649-85; (96906)	ea		4										H133 thru H136
P-H-RA192		WIRING HARNESS, BRANCHED: D64-304964; (05828)	ea		1				*	*	*	5	15		
A-H-RA193		CIRCUIT CARD ASSEMBLY: D116A304816; (05828)	ea		1										
X2-H--A194	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		9										H9 thru H17
X2-H--A195	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		9										H18 thru H26
P-H--A196		CAPACITOR, FIXED, MICA DIEL: CM30C102M; (81349)	ea		1				*	*	2	8	6	10	48
P-H--A197	5910-183-9320	CAPACITOR, FIXED, MICA DIEL: CM20B470J; (81349)	ea		1				*	*	2	8	6	10	13
P-H--A198		CAPACITOR, FIXED, MICA DIEL: CM15B820J; (81349)	ea		1				*	*	2	8	6	10	11
P-H--A199	5910-174-9967	CAPACITOR, FIXED, MICA DIEL: CM15B101K; (81349)	ea		1				*	2	2	18	18	10	47
P-H--A200	5910-101-5767	CAPACITOR, FIXED, MICA DIEL: CM35C103J; (81349)	ea		1				*	2	2	8	6	10	17
P-H--A201		CAPACITOR, FIXED, MICA DIEL: SAME AS A165	ea		1									10-16	
P-H--A202	5910-100-8150	CAPACITOR, FIXED, MICA DIEL: SAME AS A061	ea		2									10-22	

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H--A203	5910-667-1190	CAPACITOR, FIXED, PAPER DIEL: SAME AS A059	ea		2									10-23	
P-H--A204		CAPACITOR, FIXED, PAPER DIEL: D116A804816-48; (05828)	ea		3				*	2	2	18	27	10	34
P-H--A205	5910-643-9168	CAPACITOR, FIXED, PAPER DIEL: CP05A1EC473K; (81349)	ea		1				*	*	2	8	9	10	37
P-H--A206		CAPACITOR, FIXED, PAPER DIEL: D116A304816-50; (05828)	ea		3				*	2	2	18	27	10	32
P-H--A207		CAPACITOR, FIXED, PAPER DIEL: D116A304816-51; (05828)	ea		1				*	*	2	8	9	10	30
P-H--A208	5960-188-6584	ELECTRON TUBE: SAME AS A089	ea		2									10-2	
P-H--A209	5960-237-6917	ELECTRON TUBE: 5725-6AS6W; (81349)	ea		2				2	2	3	40	400	10	13
P-H--A210		PRINTED WIRING BOARD: D15-304814; (05828)	ea		1				*	*	*	5	3		MP1
P-H--A211	5905-171-2004	RESISTOR, FIXED, COMPOSITION: RC20GF223J; (81349)	ea		2				*	2	2	13	14	10	12
P-H--A212	5905-295-3409	RESISTOR, FIXED, COMPOSITION: RC20GF224K; (81349)	ea		1				*	*	2	8	7	10	44
P-H--A213	5905-279-3505	RESISTOR, FIXED, COMPOSITION: RC20GF392J; (81349)	ea		1				*	*	2	8	7	10	14
P-H--A214	5905-295-3410	RESISTOR, FIXED, COMPOSITION: SAME AS A169	ea		1									10-45	
P-H--A215	5905-254-2097	RESISTOR, FIXED, COMPOSITION: RC20GF823K; (81349)	ea		1				*	*	2	8	7	10	43
P-H--A216	5905-279-2616	RESISTOR, FIXED, COMPOSITION: RC20GF153J; (81349)	ea		1				*	2	2	13	14	10	46
P-H--A217	5905-279-1878	RESISTOR, FIXED, COMPOSITION: RC20GF243J; (81349)	ea		1				*	*	2	8	7	10	42
P-H--A218	5905-195-6761	RESISTOR, FIXED, COMPOSITION: RC20GF104J; (81349)	ea		2				*	2	2	13	14	10	18
P-H--A219	5905-866-0797	RESISTOR, FIXED, FILM: RN70D1214F; (81349)	ea		1				*	*	2	8	7	10	41
P-H--A220	5905-067-6512	RESISTOR, FIXED, FILM: RN70D4753F; (81349)	ea		1				*	*	2	8	7	10	40
P-H--A221	5905-950-6797	RESISTOR, FIXED, FILM: RN70D3923F; (81349)	ea		1				*	*	2	8	7	10	39
P-H--A222	5905-249-3661	RESISTOR, FIXED, COMPOSITION: RC20GF683J; (81349)	ea		1				*	*	2	8	7	10	19
P-H--A223	5905-279-3503	RESISTOR, FIXED, COMPOSITION: RC20GF682J; (81349)	ea		4				*	2	2	19	28	10	15
P-H--A224	5905-279-3503	RESISTOR, FIXED, COMPOSITION: SAME AS A223	ea		ref									10-15	
P-H--A225	5905-192-3982	RESISTOR, FIXED, COMPOSITION: SAME AS A115	ea		4									10-21	
P-H--A226	5905-192-3982	RESISTOR, FIXED, COMPOSITION: SAME AS A115	ea		ref									10-21	
P-H--A227	5905-171-2005	RESISTOR, FIXED, COMPOSITION: SAME AS A124	ea		2									10-24	
P-H--A228	5905-060-2482	RESISTOR, FIXED, FILM: RN65D3922F; (81349)	ea		2				*	2	2	13	14	10	20
P-H--A229	5905-257-0935	RESISTOR, FIXED, COMPOSITION: RC20GF432J; (81349)	ea		1				*	*	2	8	7	10	36
P-H--A230	5905-190-8882	RESISTOR, FIXED, COMPOSITION: SAME AS A170	ea		2									10-38	
P-H--A231	5905-185-8518	RESISTOR, FIXED, COMPOSITION: SAME AS A122	ea		1									10-27	

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A232	5905-814-3815	RESISTOR, FIXED, FILM: RN65D1003F; (81349)	ea		2				*	2	2	13	14	10	33
P-H-- A233	5905-279-3499	RESISTOR, FIXED, COMPOSITION: RC20GF273J; (81349)	ea		2				*	2	2	13	14	10	26
P-H-- A234	5905-195-6817	RESISTOR, FIXED, COMPOSITION: SAME AS A111	ea		1									10-35	
P-H-- A235	5905-702-9225	RESISTOR, FIXED, FILM: RN70D2214F; (81349)	ea		1				*	*	2	8	7	10	28
P-H-- A236	5905-812-8763	RESISTOR, FIXED, FILM: RN70D8253F; (81349)	ea		1				*	2	2	13	14	10	31
P-H-- A237	5905-892-7281	RESISTOR, FIXED, FILM: RN65D2003F; (81349)	ea		1				*	*	2	8	7	10	29
P-H-- A238		RESISTOR, VARIABLE, COMPOSITION: C33A303201-16; (05828)	ea		1				*	*	2	8	8	10	10
P-H-- A239		RESISTOR, VARIABLE, COMPOSITION: C33A303201-15; (05828)	ea		1				*	*	2	8	8	10	9
P-H-- A240		RESISTOR, VARIABLE, COMPOSITION: C33A303201-5; (05828)	ea		1				*	*	2	8	8	10	8
P-H-- A241		RESISTOR, VARIABLE, COMPOSITION: C33A303201-4; (05828)	ea		1				*	2	2	18	24	10	6
P-H-- A242		RESISTOR, VARIABLE, COMPOSITION: C33A303201-11; (05828)	ea		1				*	*	2	8	8	10	7
P-H-- A243	5960-631-8753	RETAINER, ELECTRON TUBE: 2B3; (07387)	ea		4				2	2	3	33	40	10	1
X2-H-- A244	5305-550-9329	SCREW, MACHINE: MS35229-14; (96906)	ea		4										H1 thru H4
X2-H-- A245	5305-543-2410	WASHER, LOCK: SAME AS A006	ea		4										H5 thru H8
X2-H-- A246	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		4										H9 thru H12
P-H-- A247	5961-543-0490	SEMICONDUCTOR DEVICE: SAME AS A179	ea		2									10-25	
P-H-- A248	5935-702-8244	SOCKET, ELECTRON TUBE: 44P22932; (71785)	ea		2				2	2	3	33	42	10	5
P-H-- A249	5935-878-3659	SOCKET, ELECTRON TUBE: 53P22934; (71785)	ea		2				2	2	3	33	42	10	4
A-H-R A250		CIRCUIT CARD ASSEMBLY: D116A304817; (05828)	ea		1										
X2-H-- A251	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		9										H27 thru H35
X2-H-- A252	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		9										H36 thru H44
P-H-- A253		CAPACITOR, FIXED, MICA DIEL: SAME AS A164	ea		1									9-41	
P-H-- A254	5910-174-9969	CAPACITOR, FIXED, MICA DIEL: CM15B151K; (81349)	ea		2				*	2	2	13	12	9	31
P-H-- A255		CAPACITOR, FIXED, MICA DIEL: CM30B272J; (81349)	ea		2				*	2	2	13	12	9	39
P-H-- A256	5910-112-8122	CAPACITOR, FIXED, MICA DIEL: CM30B152J; (81349)	ea		1				*	*	2	8	6	9	42
P-H-- A257	5910-174-9967	CAPACITOR, FIXED, MICA DIEL: SAME AS A199	ea		2									9-34	
P-H-- A258		CAPACITOR, FIXED, MICA DIEL: SAME AS A165	ea		3									9-14	
P-H-- A259	5910-666-6769	CAPACITOR, FIXED, MICA DIEL: CM15B270J; (81349)	ea		1				*	*	2	8	6	9	45
P-H-- A260		CAPACITOR, FIXED, MICA DIEL: CM15B121K; (81349)	ea		2				*	2	2	13	12	9	10

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A261	5910-276-6861	CAPACITOR, FIXED, MICA DIEL: CM35C682J; (81349)	ea		1				*	*	2	8	6	9	32
P-H-- A262	5910-100-8134	CAPACITOR, FIXED, MICA DIEL: CM20B391K; (81349)	ea		1				*	*	2	8	6	9	40
P-H-- A263		CAPACITOR, FIXED, MICA DIEL: CM35B472M; (81349)	ea		1				*	*	2	8	6	9	30
P-H-- A264	5910-280-7401	CAPACITOR, FIXED CERAMIC DIEL: SAME AS A060	ea		1									9-15	
P-H-- A265	5910-101-5633	CAPACITOR, FIXED, MICA DIEL: CM20C331J; (81349)	ea		1				*	*	2	8	6	9	26
P-H-- A266	5910-100-8150	CAPACITOR, FIXED, MICA DIEL: SAME AS A061	ea		1									9-28	
P-H-- A267	5910-636-3764	CAPACITOR, FIXED, MICA DIEL: CM20B681K; (81349)	ea		2				*	2	2	13	12	9	20
P-H-- A268	5910-027-5866	CAPACITOR, FIXED, MICA DIEL: SAME AS A162	ea		2									9-21	
P-H-- A269	5910-101-5778	CAPACITOR, FIXED, MICA DIEL: CM30B681J; (81349)	ea		1				*	*	2	8	6		C223
P-H-- A270		CAPACITOR, FIXED, MICA DIEL: CM35B752J; (81349)	ea		1				*	*	2	8	6		C224
P-H-- A271	5910-666-8819	CAPACITOR, FIXED, MICA DIEL: SAME AS A166	ea		1										C226
P-H-- A272		COIL RADIO FREQUENCY: C112-304096; (05828)	ea		3				*	2	2	13	18	9	7
X2-H-- A273	5310-576-7777	WASHER, LOCK: MS35337-99; (96906)	ea		3										H1, H2, H3
X2-H-- A274	5310-616-6949	NUT, PLAIN, HEXAGON: SAME AS A191	ea		3										H4, H5, H6
P-H-- A275	5960-188-6584	ELECTRON TUBE: SAME AS A089	ea		4									9-2	
P-H-- A276	5960-237-6917	ELECTRON TUBE: SAME AS A209	ea		2									9-3	
P-H-- A277		PRINTED WIRING, BOARD: D15-304874; (05828)	ea		1				*	*	*	5	3		MP1
P-H-- A278	5905-171-2004	RESISTOR, FIXED, COMPOSITION: SAME AS A211	ea		2									9-29	
P-H-- A279	5905-171-1985	RESISTOR, FIXED, COMPOSITION: RC20GF822K; (81349)	ea		2				*	2	2	13	14	9	9
P-H-- A280	5905-299-2031	RESISTOR, FIXED, COMPOSITION: RC32GF822K; (81349)	ea		1				*	*	2	8	7	9	38
P-H-- A281	5905-279-2672	RESISTOR, FIXED, COMPOSITION: RC20GF182K; (81349)	ea		1				*	*	2	8	7	9	43
P-H-- A282	5905-192-3987	RESISTOR, FIXED, COMPOSITION: SAME AS A171	ea		2									9-12	
P-H-- A283	5905-239-0583	RESISTOR, FIXED, COMPOSITION: SAME AS A119	ea		2									9-11	
P-H-- A284	5905-221-5849	RESISTOR, FIXED, COMPOSITION: RC20GF824K; (81349)	ea		1				*	*	2	8	7	9	37
P-H-- A285	5905-190-8882	RESISTOR, FIXED, COMPOSITION: SAME AS A170	ea		3									9-36	
P-H-- A286	5905-195-5514	RESISTOR, FIXED, COMPOSITION: RC20GF152K; (81349)	ea		2				*	2	2	13	14	9	8
P-H-- A287	5905-249-9491	RESISTOR, FIXED, COMPOSITION: RC20GF274K; (81349)	ea		1				*	*	2	8	7	9	44
P-H-- A288	5905-279-1880	RESISTOR, FIXED, COMPOSITION: RC20GF272J; (81349)	ea		1				*	*	2	8	7	9	35
P-H-- A289	5905-192-3982	RESISTOR, FIXED, COMPOSITION: SAME AS A115	ea		1									9-46	

SECTION v REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H--A290	5905-195-6502	RESISTOR, FIXED, COMPOSITION: RC20GF332K; (81349)	ea		1				*	*	2	8	7	9	33
P-H--A291	5905-190-8884	RESISTOR, FIXED, COMPOSITION: RC20GF123K; (81349)	ea		2				*	2	2	13	14	9	18
P-H--A292	5905-295-3410	RESISTOR, FIXED, COMPOSITION: SAME AS A169	ea		1									9-13	
P-H--A293	5905-221-5840	RESISTOR, FIXED, COMPOSITION: SAME AS A172	ea		3									9-23	
P-H--A294	5905-185-6946	RESISTOR, FIXED, COMPOSITION: SAME AS A113	ea		1									9-16	
P-H--A295	5905-185-8518	RESISTOR, FIXED, COMPOSITION: SAME AS A122	ea		2									9-17	
P-H--A296	5905-279-2616	RESISTOR, FIXED, COMPOSITION: SAME AS A216	ea		1									9-19	
P-H--A297	5905-249-4210	RESISTOR, FIXED, COMPOSITION: RC42GF123J; (81349)	ea		1				*	*	2	8	7	9	27
P-H--A298	5905-993-5986	RESISTOR, FIXED, FILM: RN70D5623F; (81349)	ea		1				*	*	2	8	7	9	24
P-H--A299	5905-814-0734	RESISTOR, FIXED, FILM: RN65D4752F; (81349)	ea		1				*	*	2	8	7	9	22
P-H--A300	5905-812-8763	RESISTOR, FIXED, FILM: SAME AS A236	ea		1										R236
P-H--A301	5905-892-7278	RESISTOR, FIXED, FILM: RN65D3011F; (81349)	ea		1				*	*	2	8	7		R237
P-H--A302	5905-578-4861	RESISTOR, FIXED, FILM: RN70B8251F; (81349)	ea		1				*	*	2	8	7		R238
P-H--A303		RESISTOR, VARIABLE, COMPOSITION: SAME AS A241	ea		2									9-6	
P-H--A304	5960-631-8753	RETAINER, ELECTRON TUBE: SAME AS A243	ea		6									9-1	
X2-H--A305	5305-550-9329	SCREW, MACHINE: SAME AS A244	ea		6										H7 thru H12
X2-H--A306	5305-543-2410	WASHER, LOCK: SAME AS A006	ea		6										H13 thru H18
X2-H--A307		NUT, PLAIN, HEXAGON: MS35649-15; (96906)	ea		6										H19 thru H24
P-H--A308	5961-543-0490	SEMICONDUCTOR DEVICE: SAME AS A179	ea		1									9-25	
P-H--A309	5935-702-8244	SOCKET, ELECTRON TUBE: SAME AS A248	ea		4									9-4	
P-H--A310	5935-702-8244	SOCKET, ELECTRON TUBE: SAME AS A248	ea		ref									9-4	
P-H--A311	5935-878-3659	SOCKET, ELECTRON TUBE: SAME AS A249	ea		2									9-5	
X2-H--A312	5340-833-0771	CLAMP, LOOP: A3477-3-4; (05828)	ea		2										MP2, MP3
X2-H--A313	5305-550-9328	SCREW, MACHINE: SAME AS A041	ea		2										H45, H46
X2-H--A314	5310-209-5311	WASHER, LOCK: SAME AS A042	ea		2										H47, H48
X2-H--A315	5310-186-7437	WASHER, FLAT: MS15795-604; (96906)	ea		2										H49, H50
X2-H--A316	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		2										H51, H52
P-H--A317		COIL, RADIO FREQUENCY: B3006-3; (05828)	ea		2				*	*	2	10	12	3	15
P-H--A318		FRAME, CIRCUIT BOARD: D12-304929; (05828)	ea		1				*	*	*	5	9		MP4

SECTION V REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X2-H-- A319	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		3										H53, H54, H55
X2-H-- A320	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		3										H56, H57, H58
X2-H-- A321	5310-656-0026	WASHER, FLAT: SAME AS A074	ea		3										H59, H60, H61
P-H-- A322		FRAME, CIRCUIT BOARD: D12-304930; (05828)	ea		1				*	*	*	5	9		MP5
X2-H-- A323	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		3										H62, H63, H64
X2-H-- A324	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		3										H65, H66, H67
X2-H-- A325	5310-656-0026	WASHER, FLAT: SAME AS A074	ea		3										H68, H69, H70
P-H-- A326		HANDLE, BOW: 816-304935; (05828)	ea		1				*	*	2	8	9		MP6
X2-H-- A327	5305-551-7031	SCREW, MACHINE: MS35229-45; (96906)	ea		2										H71, H72
X2-H-- A328	5310-209-5309	WASHER, LOCK: SAME AS A190	ea		2										H73, H74
X2-H-- A329		PLATE, IDENTIFICATION: B52-304812; (05828)	ea		1										MP7
X2-H-- A330	5310-209-5311	WASHER, LOCK: SAME AS A042	ea		2										H75, H76
X2-H-- A331	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		2										H77, H78
X1-H-- A332		PANEL ASSEMBLY: D116A304811; (05828)	ea		1										
X2-H-- A333	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		10										H79 thru H88
X2-H-- A334	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		10										H89 thru H98
X2-H-- A335	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		4										H99 thru H102
P-O-- A336	5920-474-5743	FUSE, CARTRIDGE: FO2G3R00A; (96906)	ea		2				2	3	5	46	100	3	13
P-O-- A337	6240-155-8706	LAMP, INCANDESCENT: MS15571-2; (96906)	ea		1				2	3	6	71	75	3	6
P-H-- A338		RESISTOR, VARIABLE, COMPOSITION: C33A303201-13; (05828)	ea		1				*	*	2	8	8	3	3
P-H-- A339		AMMETER: C52-303200; (05828)	ea		1				*	*	*	5	7	3	1
P-H-- A340	5910-280-7401	CAPACITOR, FIXED CERAMIC DIEL: SAME AS A060	ea		2									3-14	
P-H-- A341	5935-189-2962	CONNECTOR RECEPTACLE, ELEC: MS3102A10SL3P; (96906)	ea		1				*	*	2	8	14	3	10
X2-H-- A342	5305-550-9328	SCREW, MACHINE: SAME AS A041	ea		4										H1 thru H4
X2-H-- A343	5305-543-2410	WASHER, LOCK: SAME AS A006	ea		4										H5 thru H8
X2-H-- A344	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		4										H9 thru H12
P-H-- A345	5920-556-0144	FUSEHOLDER: FHN20G; (81349)	ea		2				*	2	2	13	24	3	12
P-O-- A346		KNOB: 835-301899; (05828)	ea		1				*	*	2	8	7		MP1
P-O-- A347	6210-186-7987	LAMPHOLDER: MS90287-4; (96906)	ea		1				*	*	2	8	10	3	5

SECTION v REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H-- A348		MIXER, CRYSTAL, COAXIAL: C116A304858; (05828)	ea		1				*	*	*	5	4	2	5
P-H-- A349		CONNECTOR, PLUG, ELECTRICAL: SAME AS A051	ea		1										
P-H-- A350	5935-754-7689	CONNECTOR, PLUG, ELECTRICAL: SAME AS A048	ea		1										
P-H-- A351	5961-262-0315	SEMICONDUCTOR DEVICE, DIODE: 1N21C; (81349)	ea		2				*	2	2	13	14	2	4
A-H-- A352		PANEL SUBASSEMBLY: D52-304853; (05828)	ea		1										MP2
A-H-- A353		PANEL, REINFORCING: D99-305245; (05828)	ea		1										MP3
X2-H-- A354	5305-550-9328	SCREW, MACHINE: SAME AS A041	ea		1										H13
X2-H-- A355	5305-543-2410	WASHER, LOCK: SAME AS A006	ea		1										H14
X2-H-- A356	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		1										H15
P-H-- A357	5905-583-6233	RESISTOR, FIXED, FILM: RN65B1502F; (81349)	ea		1				*	*	2	8	7		R349
P-H-- A358		RING, RETAINING: B24-304955; (05828)	ea		12				*	2	2	19	48		MP4 thru MP15
X2-H-- A359		SCREW, EXTERNALLY RELIEVED BODY: B29-304822; (05828)	ea		12										H16 thru H27
P-H-- A360	5930-050-2627	SWITCH, TOGGLE: MS25098-1; (96906)	ea		1				*	*	2	8	15	3	4
P-H-- A361	5930-655-1508	SWITCH, TOGGLE: MS25100-4; (96906)	ea		1				*	*	2	8	15	3	22
P-H-- A362	5940-847-3138	TERMINAL, LUG: SAME AS A184	ea		1										MP16
P-H-- A363	5905-702-9133	RESISTOR, VARIABLE, WIREWOUND: RA20LASB153A; (81349)	ea		2				*	2	2	13	16		R350, R351
X2-H-- A364		LABEL, SCHEMATIC DIAGRAM, LAM: C99-305241; (05828)	ea		1										
X2-H-- A365	5305-550-9346	SCREW, MACHINE: SAME AS A054	ea		1										
X2-H-- A366	5310-045-0591	WASHER, LOCK: SAME AS A073	ea		1										
X2-H-- A367	5310-803-1833	NUT, PLAIN, HEXAGON: SAME AS A075	ea		1										
P-H-- A368	4010-515-5441	BEAD CHAIN ASSEMBLY: A3750-4-4; (05828)	ea		1				*	*	2	8	8		MP1
X2-H-- A369	5305-550-9329	SCREW, MACHINE: SAME AS A244	ea		1										H1
X2-H-- A370	5310-209-5311	WASHER, LOCK: SAME AS A042	ea		1										H2
X2-H-- A371	5310-205-9971	WASHER, FLAT: MS15795-603; (96906)	ea		1										H3
X2-H-- A372	5310-616-3092	NUT, PLAIN, HEXAGON: SAME AS A136	ea		1										H4

SECTION VII INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER AN/URM-101B

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
4010-515-5441	A368	5905-185-8518	A122	5905-299-2031	A280
5305-543-2410	A006	5905-186-3008	A114	5905-539-5886	A105
5305-550-9326	A086	5905-190-8876	A175	5905-542-7825	A125
5305-550-9328	A041	5905-190-8882	A170	5905-578-4861	A302
5305-550-9329	A244	5905-190-8884	A291	5905-583-6233	A357
5305-550-9346	A054	5905-192-3981	A123	5905-660-3803	A127
5305-551-7031	A327	5905-192-3982	A115	5905-688-4980	A128
5305-584-8690	A005	5905-192-3987	A171	5905-702-9133	R350
5305-722-2666	A026	5905-192-3988	A118	5905-702-9225	A235
5310-045-0591	A073	5905-195-5514	A286	5905-812-8763	A236
5310-045-3296	A038	5905-195-6502	A290	5905-814-0734	A299
5310-186-7437	A315	5905-195-6761	A218	5905-814-3815	A232
5310-198-9348	A108	5905-195-6800	A121	5905-832-4111	A009
5310-205-9971	A371	5905-195-6814	A126	5905-866-0797	A219
5310-209-5309	A190	5905-195-6817	A111	5905-892-7278	A301
5310-209-5311	A042	5905-221-5840	A172	5905-892-7281	A237
5310-576-7777	A273	5905-221-5849	A284	5905-950-6797	A221
5310-616-6949	A191	5905-239-0583	A119	5905-984-0296	A129
5310-656-0026	A974	5905-249-3661	A222	5905-993-5986	A298
5310-687-6107	A140	5905-249-4210	A297	5910-027-5866	A162
5310-803-1833	A075	5905-249-9491	A287	5910-100-8134	A262
5315-531-7880	A031	5905-254-2097	A215	5910-100-8150	A061
5325-709-3951	A027	5905-256-0409	A116	5910-101-5633	A265
5330-821-7503	A028	5905-257-0935	A229	5910-101-5767	A200
5340-833-0771	A312	5905-279-1716	A174	5910-101-5778	A269
5905-060-2482	A228	5905-279-1878	A217	5910-112-8122	A256
5905-067-6512	A220	5905-279-1880	A288	5910-163-0091	A065
5905-171-1976	A176	5905-279-2616	A216	5910-174-9967	A199
5905-171-1985	A279	5905-279-2672	A281	5910-174-9968	A062
5905-171-1998	A112	5905-279-3499	A233	5910-174-9969	A254
5905-171-2002	A120	5905-279-3503	A223	5910-183-9320	A197
5905-171-2004	A211	5905-279-3505	A213	5910-276-6861	A261
5905-171-2005	A124	5905-284-3535	A177	5910-280-7401	A060
5905-171-2009	A117	5905-295-3409	A212	5910-543-0506	A068
5905-185-6946	A113	5905-295-3410	A169	5910-636-3764	A267

SECTION VII INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE

TO INDEX NUMBER AN/URM-101B(cont)

FEDERAL STOCK NUMBER	INDEX NO.
5910-643-9168	A205
5910-666-6769	A259
5910-666-8083	A063
5910-666-8819	A166
5910-667-1190	A059
5910-840-9870	A057
5920-474-5743	A336
5920-556-0144	A345
5930-050-2627	A360
5930-655-1508	A361
5935-160-1365	A150
5935-189-2962	A341
5935-223-0577	A012
5935-252-6340	A007
5935-260-0516	A154
5935-404-8015	A013
5935-621-6888	A085
5935-636-7145	A014
5935-702-8244	A248
5935-754-7689	A048
5935-873-9076	A047
5935-878-3659	A249
5940-156-7344	A185
5940-159-1293	A186
5940-187-5106	A015
5940-204-7897	A183
5940-250-7764	A187
5940-622-1934	A181
5940-847-3138	A184
5940-892-7446	A182
5940-900-4575	A188
5950-827-6432	A102
5960-188-6584	A089
5960-237-6917	A209
5960-262-0015	A147
5960-262-0345	A146
5960-262-1357	A090
5960-624-4718	A091
5960-631-8753	A243
5960-729-8150	A148
5960-856-2461	A134
5961-262-0315	A351
5961-543-0490	A179
5961-572-4526	A141
5961-577-6214	A178
5961-912-4907	A145
5970-814-0393	A109
6210-186-7987	A347
6240-155-8706	A337
6625-523-4291	A001
6625-553-6295	A010
6625-827-4171	A002

REF NUMBER	INDEX NUMBER
A3477-3-6	A071
A3731-7	A097
A79-303566	A144
A99-305238	A101
B112-304933-1	A081
B112-304933-2	A082
B112-304933-3	A083
B112-304933-4	A084
B116A304687	A180
B116A304868	A158
B116A304909	A143
B116A304910	A137
B116A304947	A030
B12-304848	A022
B12-304895	A040
B12-304928	A045
B12-304932-1	A036
B12-304949	A053
B15-304842	A024
B15-304954	A043
B16-304907	A033
B16-304935	A326
B21-304920-1	A093
B21-304920-2	A092
B21-304938	A032
B24-304955	A358
B29-304822	A359
B3006-3	A317
B3007-2-3	A078
B3007-2-5	A079
B3007-2-8	A080
B3007-2-18	A076
B3400-02-1	A095
B3400-02-3	A096
B3400-02-4	A094
B35-301899	A346
B52-304800	A011
B52-304812	A329
B52-304957	A035
B52-304958	A034
B52-304959	A008
B63-304095	A087
B79-304827-2	A004
B79-304828-2	A003
B99-305228	A077
B99-305229	A046
B99-305230	A049
B99-305232-1	A025
B99-305233	A018
CC22CH050D	A064
CC22CH070D	A058
CC22CH100F	A067
CE32C700N	A056

SECTION VII INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER AN/URM-101B(cont)

REF NUMBER	INDEX NO.	REF NUMBER	INDEX NO.	REF NUMBER	INDEX NO.
CE61C250F	A069	D12-304930	A322		
CK30SL101K	A066	D15-304814	A210		
CM15B121K	A260	D15-304818	A070		
CM15B470K	A164	D15-304874	A277		
CM15B820J	A198	D52-304853	A352		
CM20B471M	A165	D64-304964	A192		
CM30B272J	A255	D99-305235	A016		
CM30C102M	A196	D99-305245	A353		
CM35B472M	A263	F29NM62	A055		
CM35B752J	A270	MS20470AD4-5	A023		
C112-304096	A272	MS20470AD6-14	A019		
C116A304858	A348	MS35222-62	A037		
C15-304882	A029	MS35229-13	A151		
C33A303201-4	A241	MS35649-15	A307		
C33A303201-5	A240	TS205C01	A149		
C33A303201-11	A242	0200-0910B	A051		
C33A303201-13	A338	22FP3-8-32	A020		
C33A303201-15	A239	6-32PNHBRASSCR	A106		
C33A303201-16	A238				
C3736-01-1	A130				
C52-303200	A339				
C75-303148	A189				
C83-303149	A088				
C83-303150	A098				
C99-305241	A364				
D116A304808	A017				
D116A304810	A021				
D116A304811	A332				
D116A304816	A193				
D116A304816-50	A206				
D116A304816-51	A207				
D116A304817	A250				
D116A304821	A039				
D116A304869	A052				
D116A804816-48	A204				
D12-304929	A318				

SECTION VIII INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER AN/URM-101B

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
1	1	A002
		A003
		A004
	2	A010
		A011
		A012
		A013
		A014
	3	A009
	5	A008
	6	A039
2	1	A016
	4	A351
	5	A348
3	1	A339
	3	A338
	4	A360
	5	A437
	6	A337
	10	A341
	12	A345
	13	A336
	14	A340
	15	A317
	22	A361
4	2	A046
		A047
		A048
	5	A146
	6	A094
	7	A089
	8	A150
	9	A098
	16	A147
	17	A095
	18	A090
	19	A154
	21	A087
	23	A149
	24	A085
	25	A128
	26	A127
	27	A081
	28	A082
	29	A083
	30	A084
	31	A077
	45	A056
	46	A057
	47	A189
	48	A102
	50	A129
	52	A088
	53	A105
	54	A069
	55	A059
	56	A125
	57	A065
		A066
	59	A078
	60	A067
	61	A114
		A123
	62	A124
	63	A063
	64	A122
	65	A064
	67	A111
	68	A076
	69	A080
	70	A058
	71	A062
	72	A068
	73	A121
	74	A120
	75	A119
	76	A061
	77	A118
	78	A060
	79	A115
	80	A116
	81	A113
	82	A112
	83	A079
	84	A145
	87	A141
		A142
7	1	A167
	2	A175
	3	A164
	4	A174
	5	A162
	6	A163
	7	A168
	8	A173
	9	A178
	10	A169
	11	A165
	12	A170
	13	A177
	14	A172
	15	A179
	17	A176
9	1	A304
	2	A275
	3	A276
	4	A309
		A310
	5	A311
	6	A303
	7	A272
	8	A286
	9	A279
	10	A260
	11	A283
	12	A282
	13	A292
	14	A258
	15	A264
	16	A294
	17	A295
	18	A291
	19	A296

SECTION VIII INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER AN/URM-101F(cont)

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
9	20	A267
	21	A268
	22	A299
	23	A293
	24	A298
	25	A308
	26	A265
	27	A297
	28	A266
	29	A278
	30	A263
	31	A254
	32	A261
	33	A290
	34	A257
	35	A288
	36	A285
	37	A284
	38	A280
	39	A255
	40	A262
	41	A253
	42	A256
	43	A281
	44	A287
	45	A259
	46	A289
10	1	A243
	2	A208
	4	A249
	5	A248
	6	A241
	7	A242
	8	A240
	9	A239
	10	A238
	11	A198
	12	A211
	13	A197
		A209
	14	A213
	15	A223
		A224
	16	A201
	17	A200
	18	A218
	19	A222
	20	A228
	21	A225
		A226
	22	A202
	23	A203
	24	A227
	25	A247
	26	A233
	27	A231
	28	A235
	29	A237
	30	A207
	31	A236
	32	A206
	33	A232
	34	A204
	35	A234
	36	A229
	37	A205
	38	A230
	39	A221
	40	A220
	41	A219
	42	A217
	43	A215
	44	A212
	45	A214
	46	A216
	47	A199
	48	A196

SECTION IX INDEX-REFERENCE DESIGNATION CROSS REFERENCE TO INDEX NUMBER AN/URM-101B

REFERENCE DESIGNATION	INDEX NUMBER
C223	A269
C224	A270
C226	A271
C310	A166
E302	A050
E310	A148
E318	A096
E501	A007
H1	A005
	A020
	A026
	A037
	A041
	A054
	A244
	A273
	A342
	A369
H2	A005
	A020
	A026
	A037
	A041
	A054
	A244
	A273
	A342
	A369
H2	A005
	A020
	A026
	A037
	A041
	A054
	A244
	A273
	A342
	A370
H3	A005
	A020
	A026
	A038
	A042
	A055
	A244
	A273
	A342
	A371
H4	A005
	A020
	A038
	A042
	A055
	A244
H4	A274
	A342
	A372
H5	A006
	A020
	A044
	A072
	A245
	A274
	A343
H6	A006
	A020
	A044
	A072
	A245
	A274
	A343
H7	A006
	A020
	A044
	A073
	A245
	A305
	A343
H8	A006
	A020
	A044
	A073
	A245
	A305
	A343
H9	A020
	A074
	A194
	A246
	A305
	A344
H10	A020
	A074
	A194
	A246
	A305
	A344
H11	A020
	A075
	A194
	A246
	A305
	A344
H12	A020
	A075
	A194
	A246
	A305
	A344
H13	A086
	A194
	A306
	A354
H14	A086
	A194
	A306
	A355
H15	A086
	A194
	A306
	A356
H16	A086
	A099
	A194
	A306
	A359
H17	A099
	A194
	A306
	A359
H18	A100
	A195
	A306
	A359
H19	A100
	A195
	A307
	A359
H20	A103
	A195
	A307
	A359
H21	A103
	A195
	A307
	A359
H22	A103
	A195
	A307
	A359
H23	A103
	A195
	A307
	A359
H24	A104
	A195
	A307
	A359
H25	A104
	A195
	A359
H26	A104
	A195
	A359
H27	A104
	A251
	A359

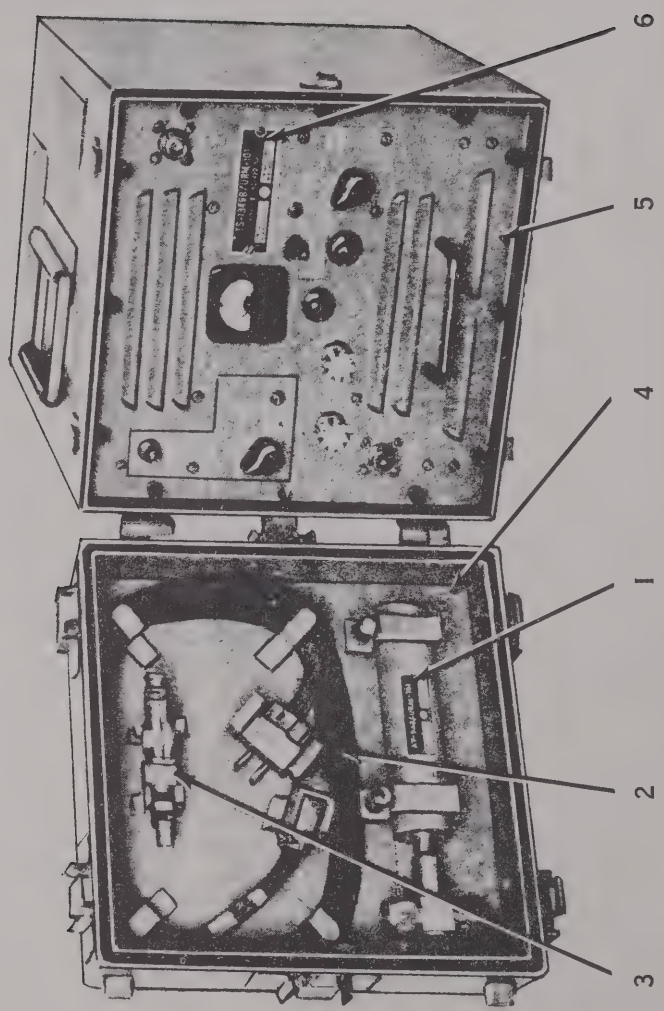
SECTION IX INDEX-REFERENCE DESIGNATION

CROSS REFERENCE TO INDEX NUMBER AN/URM-101B

REFERENCE DESIGNATION	INDEX NUMBER
H28	A106 A251
H29	A107 A251
H30	A108 A251
H31	A108 A251
H32	A110 A251
H33, H34, H35	A131,A251
H36, H37, H38, H39, H40	A131,A252
H41, H42, H43, H44	A132,A252
H45, H46,	A132,A313
H47, H48	A132,A314
H49, H50	A133,A315
H51, H52	A133,A316
H53, H54, H55	A133,A319
H56, H57	A133,A320
H58	A136,A320
H59, H60	A138,A321
H61	A139,A321
H62	A139,A323
H63	A140,A323
H64	A151,A323
H65	A151,A324
H66, H67	A151,A324
H68, H69, H70	A151,A325
H71, H72	A151,A327
H73, H74	A152,A328
H75, H76	A152,A330
H77, H78	A152,A331
H79	A152,A333
H80, H81, H82, H83, H84, H85, H86, H87, H88	A153,A333
H89, H90, H91, H92, H93, H94, H95	A155,A334
H96, H97, H98	A334
H99, H100, H101, H102	A335
H103, H104, H105, H106, H107, H108, H109, H110	A156
H111, H112, H113, H114, H115, H116	A157,A159
H117, H118	A157,A160
H119, H120, H121, H122	A160
H123, H124, H125, H126, H127, H128	A161
H129, H130, H131, H132, H133, H134, H135, H136	A190
MP1	A019, A022, A039, A031, A040, A053, A181, A210, A277, A346, A368
MP2	A015, A019, A022, A031, A034, A045, A053, A181, A312, A352
MP3	A018, A022, A032, A035, A070, A181, A312, A353
MP4	A022, A033, A036, A071, A181, A318, A358
MP5	A022, A071, A181, A322, A358
MP6	A022, A092, A181, A326, A358

SECTION IX INDEX-REFERENCE DESIGNATION CROSS REFERENCE TO INDEX NUMBER AN/URM-101R

REFERENCE DESIGNATION	INDEX NUMBER
MP7	A023, A092, A181, A329, A358
MP8	A023, A093, A181, A358
MP9	A023, A093, A181, A358
MP10	A023, A097, A181, A358
MP11	A023, A101, A181, A358
MP12	A023, A101, A181, A358
MP13	A023, A109, A181, A358
MP14	A023, A109, A181, A358
MP15	A023, A130, A181, A358
MP16	A023, A130, A181, A362
MP17	A023, A134, A181
MP18	A023, A158, A181
MP19	A024, A181, A183
MP20	A024, A181, A184
MP16	A023, A130, A181, A362
MP17	A023, A134, A181
MP18	A023, A158, A181
MP19	A024, A181, A183
MP20	A024, A181, A184
MP21	A024, A181, A184
MP22	A024, A181, A184
MP23	A024, A181, A184
MP24	A024, A181, A184
MP25	A025, A181, A184
MP26	A025, A181, A185
MP27	A027, A181, A185
MP28	A027, A181, A185
MP29	A027, A181, A185
MP30	A028, A181, A186
MP31	A028, A181, A187
MP32	A028, A181, A188
MP33, MP34, MP35, MP36, MP37, MP38, MP39, MP40, MP41, MP42, MP43, MP44, MP45, MP46, MP47, MP48	A181
P302	A051
R236	A300
R237	A301
R238	A302
R316, R323	A171
R324	A117
R349	A357
R350	A363
R351	A363
R354	A126
TP301, TP302, TP303, TP304, TP305	A182
V308	A091
W302	A049



TM 6625—1634—15—1

Figure 1. Radio test set AN/URM-101B.

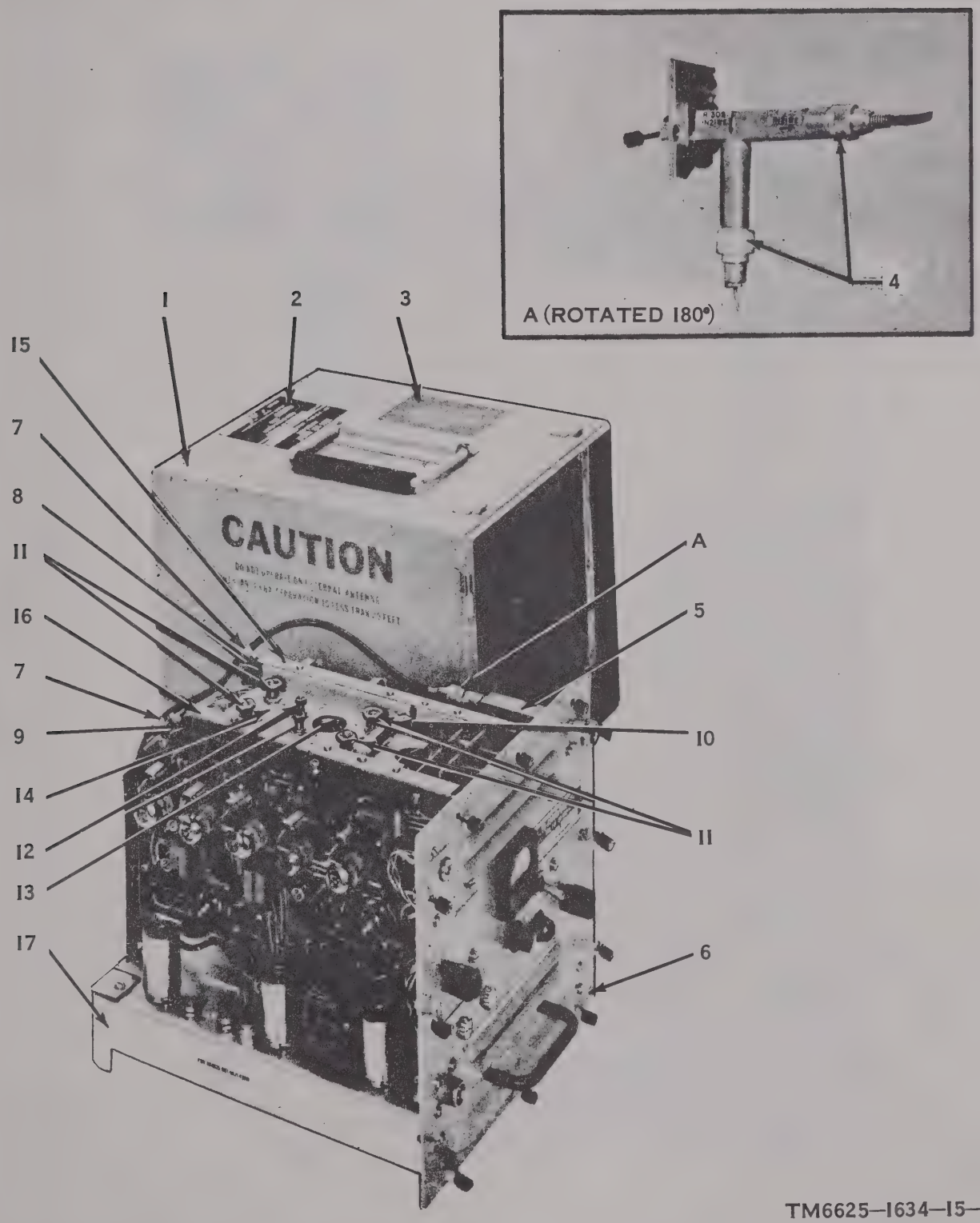


Figure 2. Radio test set AN/URM-101B.

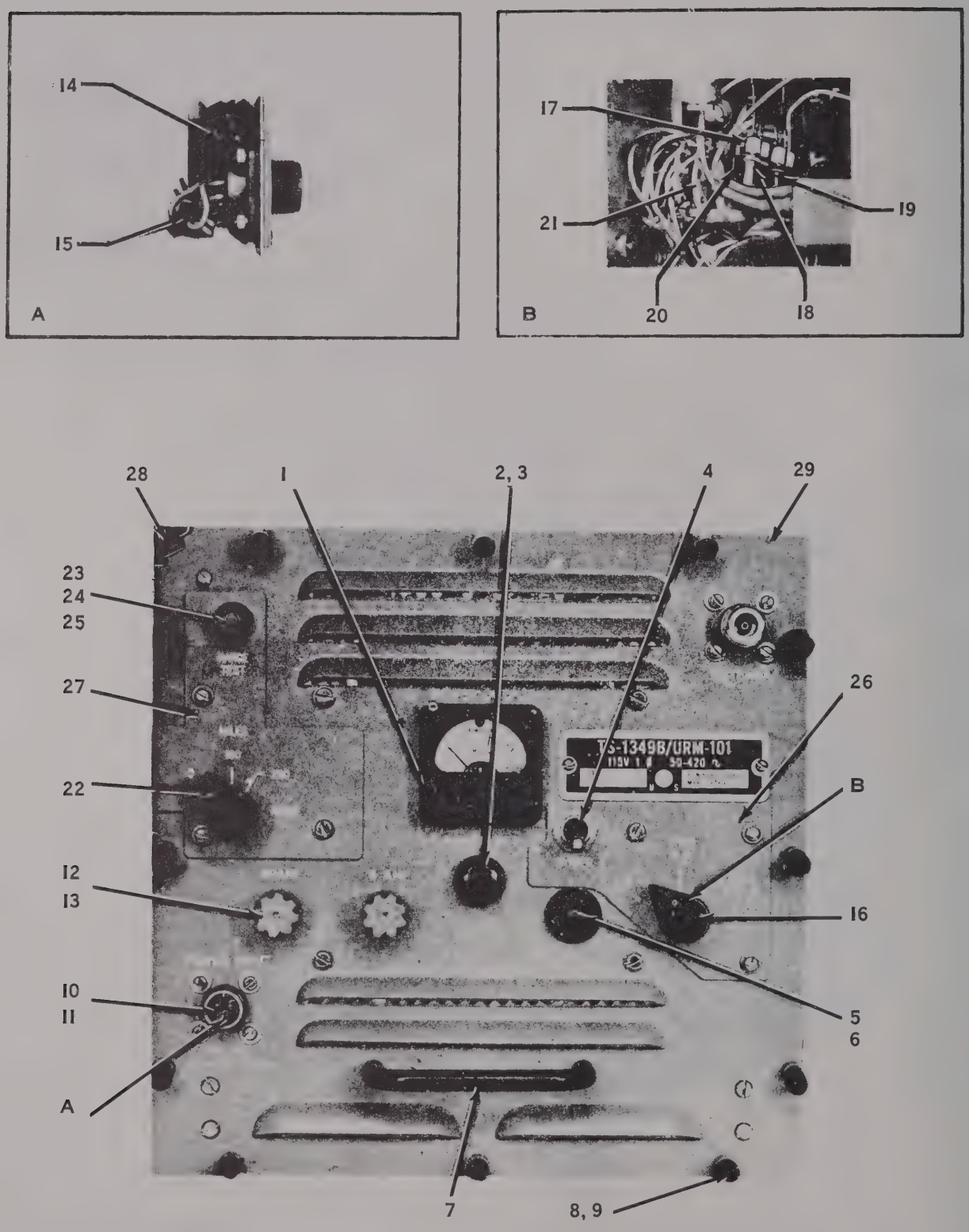
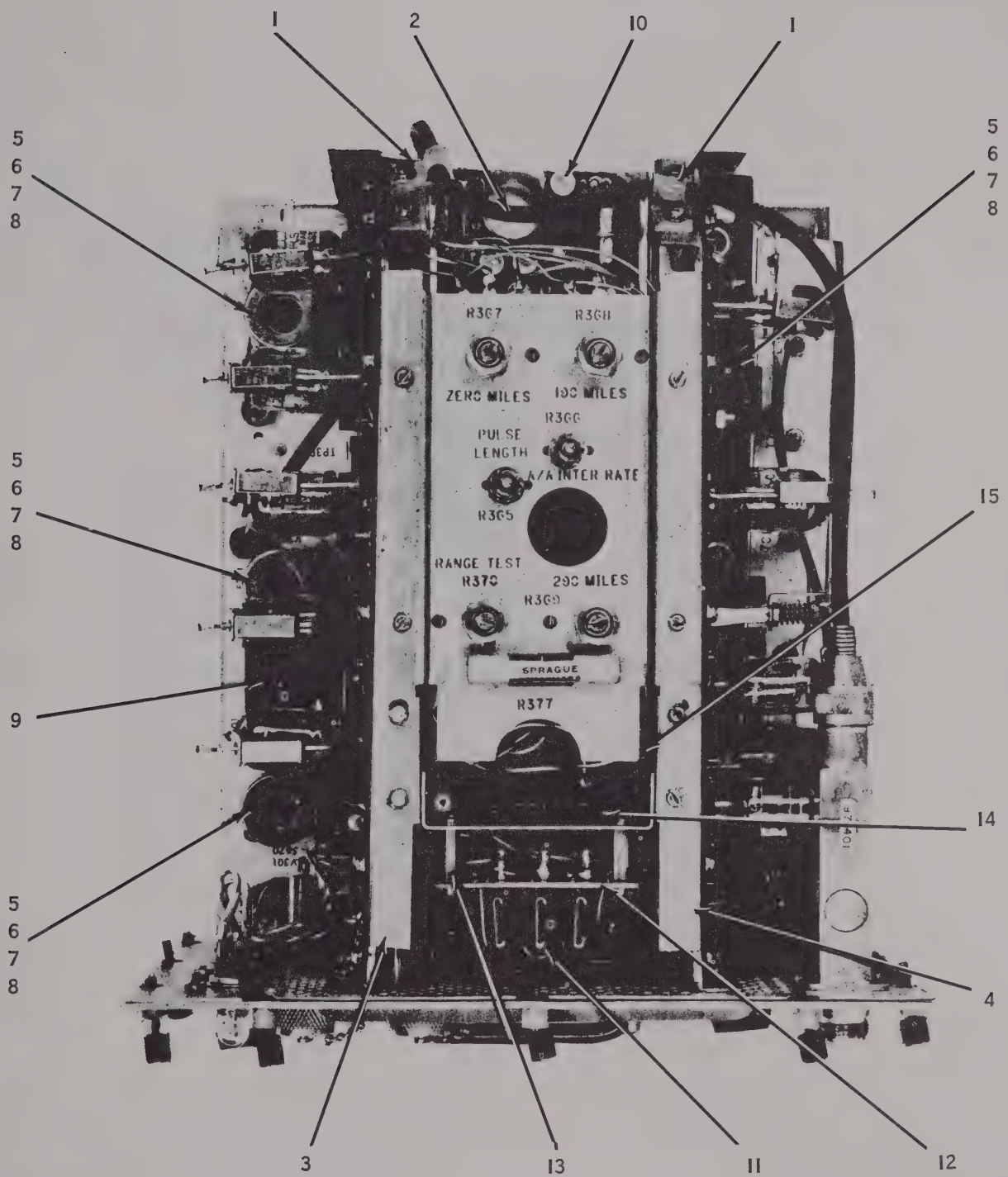


Figure 3. Front panel assembly.



TM6625—1634—15—4 (1)

Figure 4 (1). Electrical equipment chassis (sheet 1 of 4).

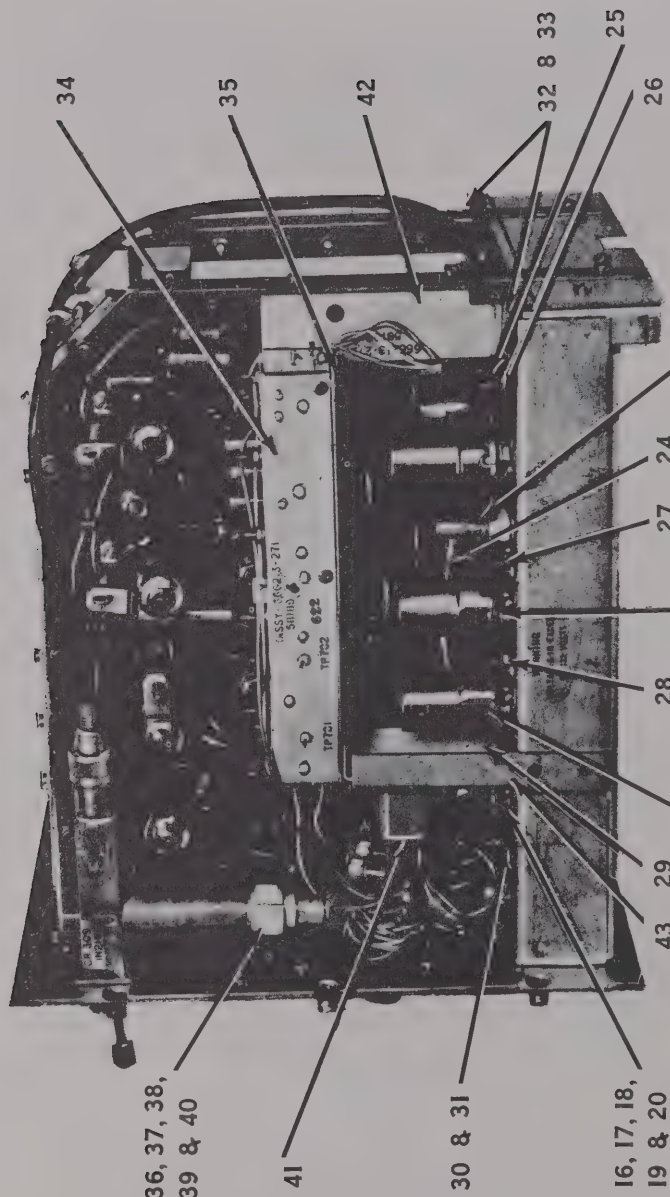


Figure 4 (2). Electrical equipment chassis (sheet 2 of 4).

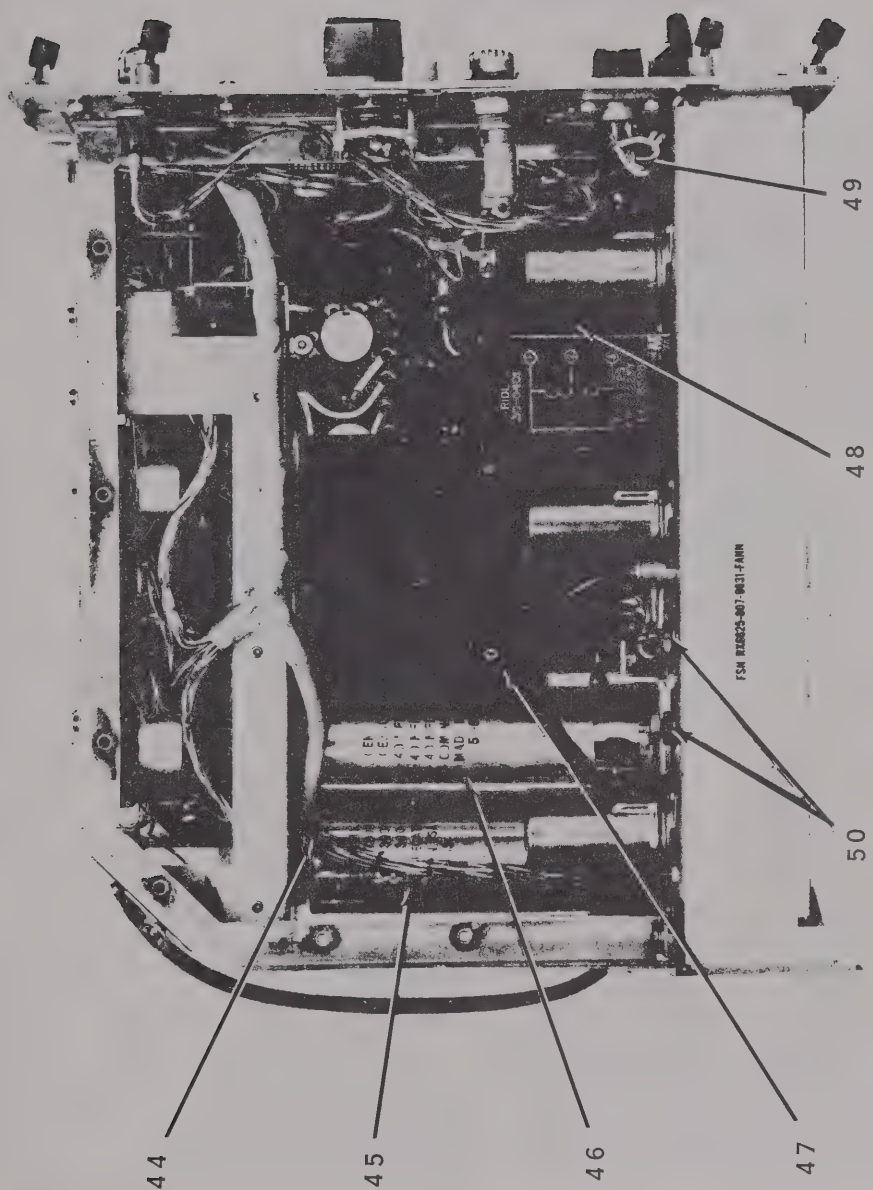


Figure 4 (3). Electrical equipment chassis (sheet 3 of 4).

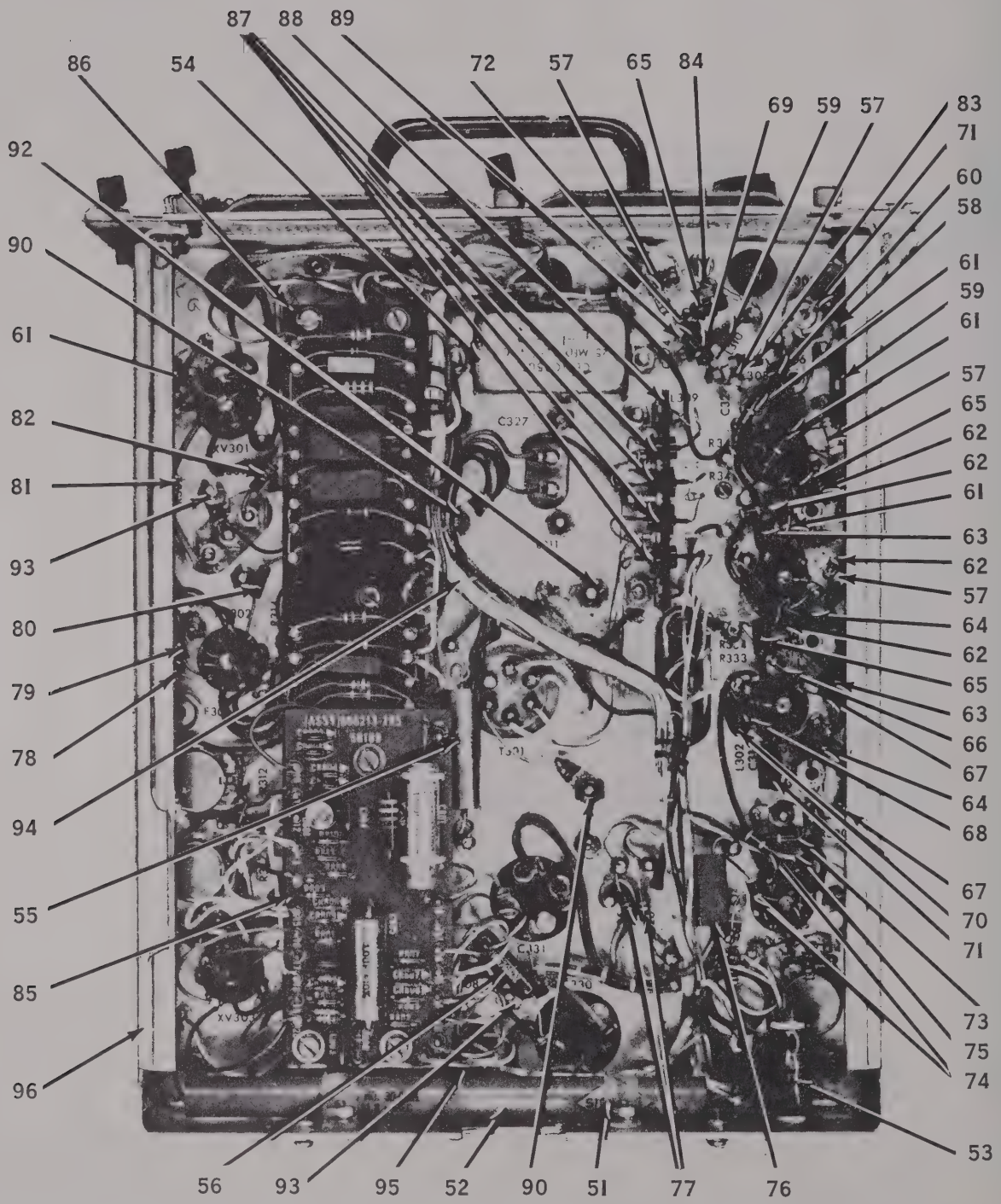


Figure 4 (4). Electrical equipment chassis (sheet 4 of 4).

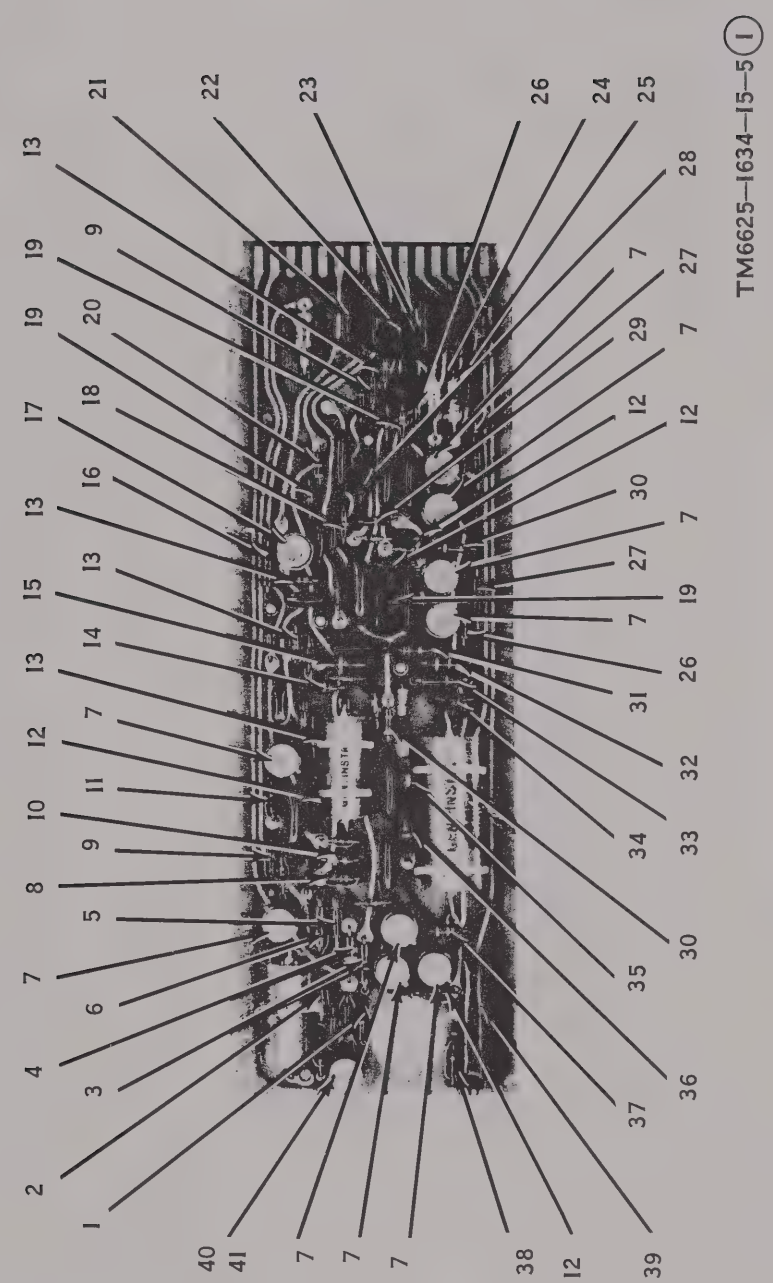


Figure 5 (1). Video assembly (sheet 1 of 2).

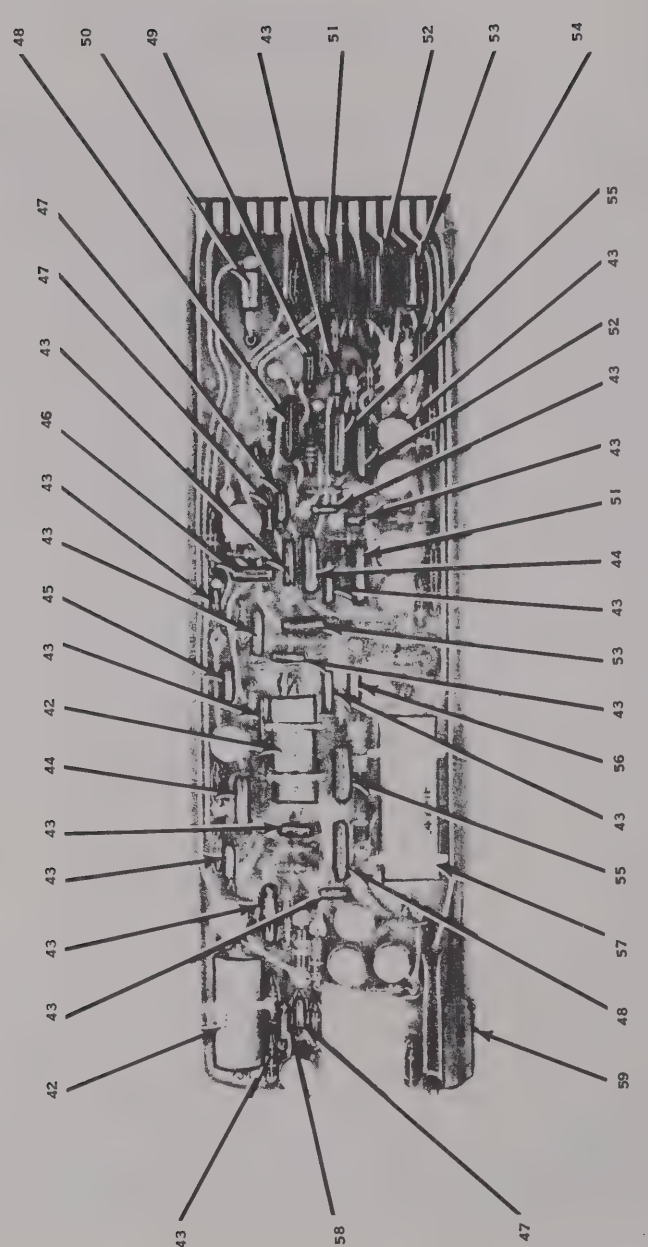


Figure 5 (2). Video assembly (sheet 2 of 2).

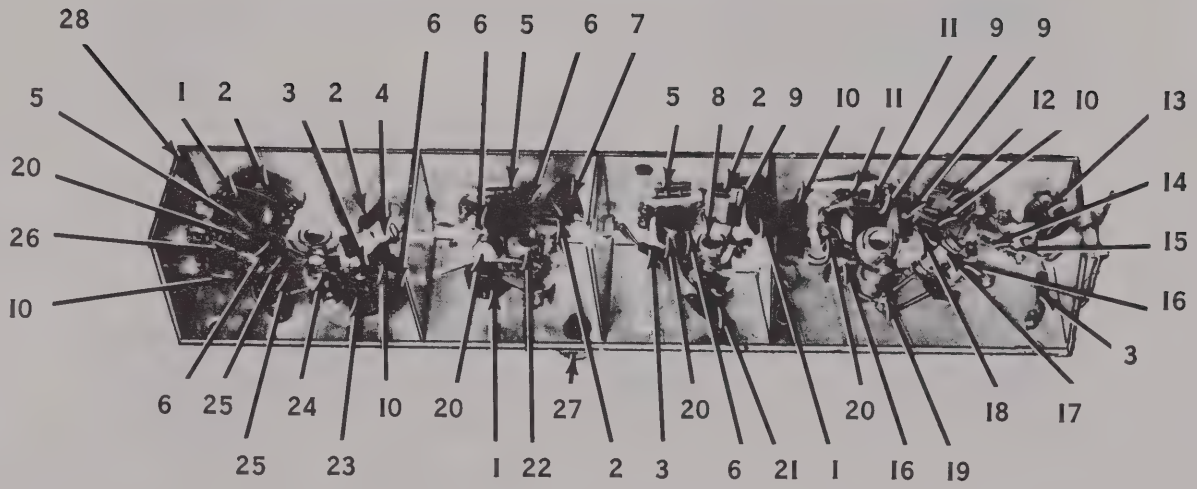


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Figure 6. Air-to-air RF generator.

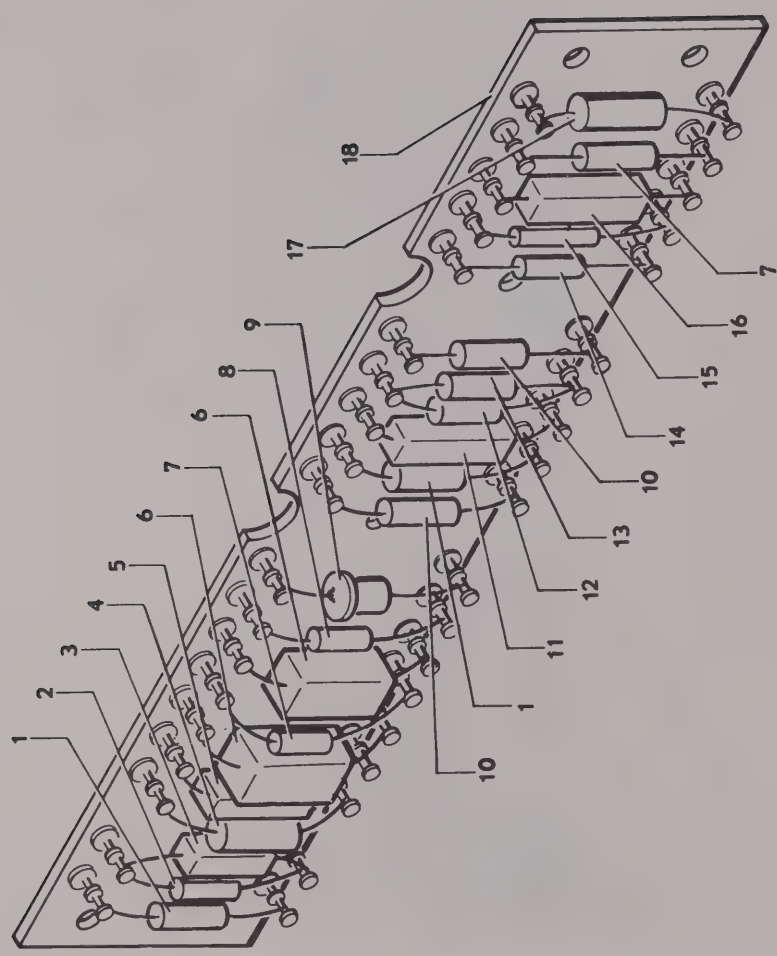

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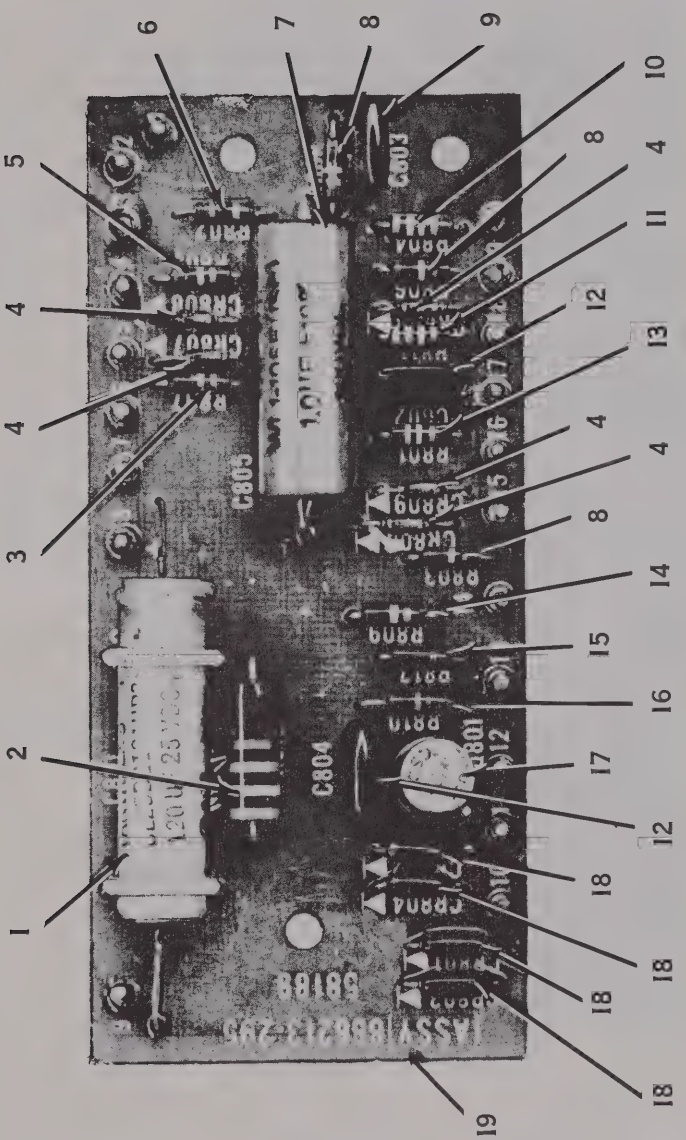
Figure 7. Terminal board assembly.



TM 6625—1634—15—8

Figure 8. Shaper assembly.

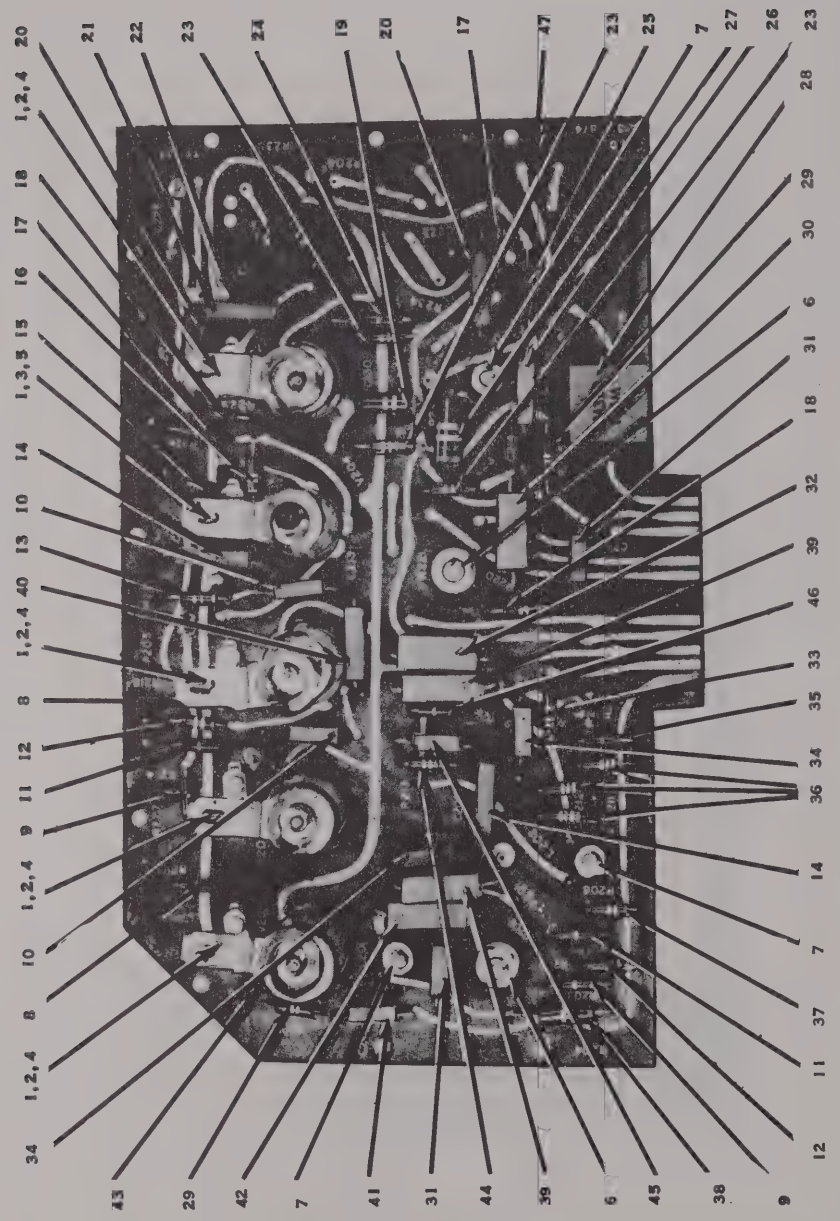


Figure 9. Printed circuit board B.

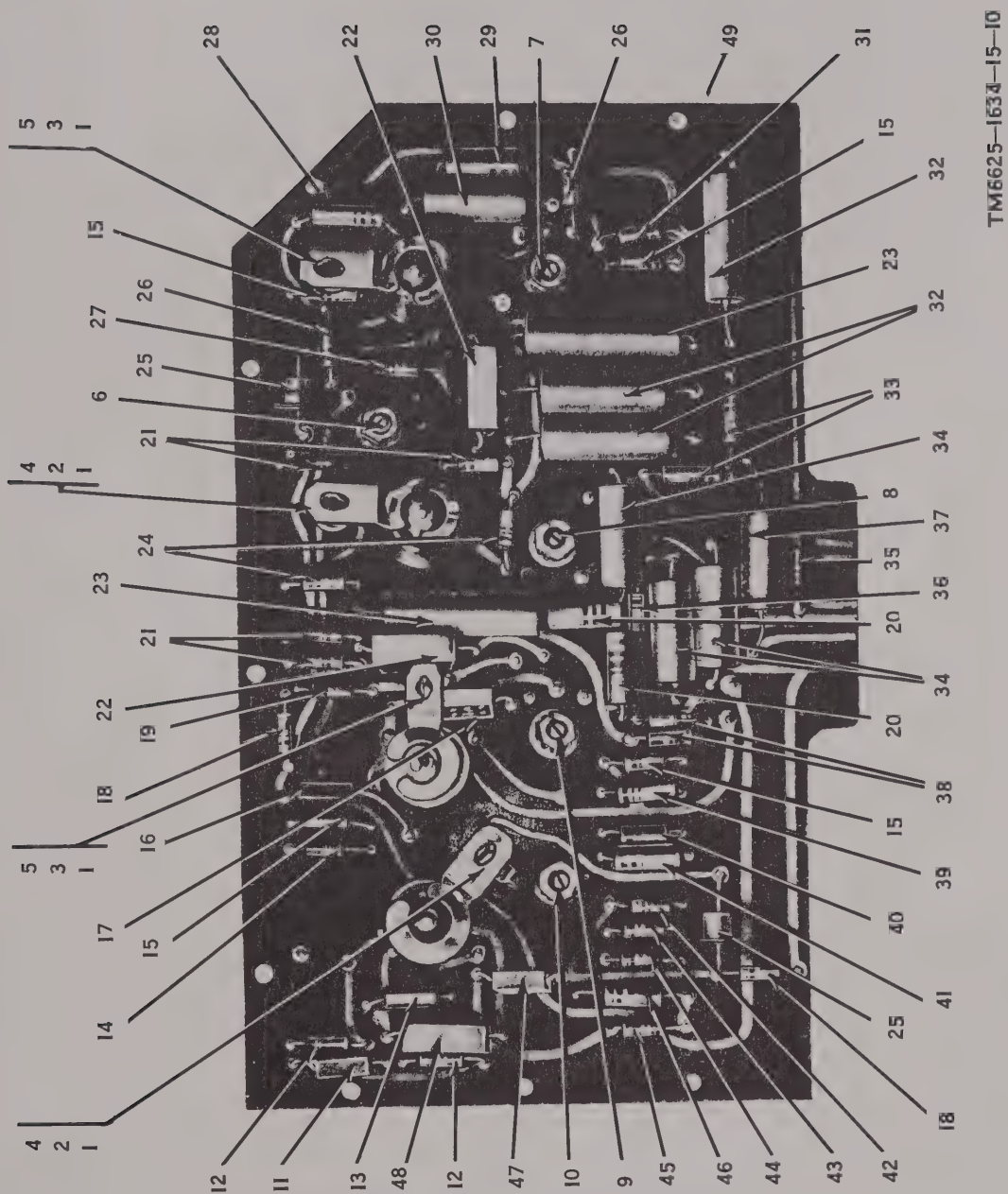


Figure 10. Printed circuit board A.

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